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INTERNATIONAL INDUSTRIAL DEVELOPMENT CENTER
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INDUSTRIAL ENTREPRENEURSHIP IN MADRAS STATE

by

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Georgetown University, Washington D.C.
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1960

James Joseph Berna (b. 1919)

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To My Mother

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The research for the study was carried out in India during 1957 with the assistance of a grant under the United States International Educational Exchange Program.

All views expressed, and also defects and shortcomings, are to be attributed to the writer alone.

JAMES J. BERNA S.J.

FOREWORD

In this study Dr. Berna performs a valuable service to India, to the other countries that, like India, are striving to advance social welfare by fostering industrial development, and to all who are interested in scientific understanding of the processes of economic development.

The study is based on diligent field investigation into the history and present situations of fifty-two manufacturing firms engaged in various kinds of light engineering production in and around Madras City and Coimbatore. All the firms at the time of the study (with one exception) were of medium size—that is, each had more than fifty employees but less than two hundred and fifty.

One of Dr. Berna's most interesting findings is that his medium-size manufacturing firms have mostly grown from small beginnings, many even from very small repair and odd-job shops. This proves that it is at least possible for small-scale industry in India to serve as a seedbed for medium-scale industry, and it justifies further the efforts being made by the Government of India to provide small-scale manufacturers with better opportunities for access to modern technical and managerial knowledge and to the financial and other requisites for growth. The aim of a "small industry" programme in a developing economy should not be to keep the small producers small but to help the more promising and efficient ones to grow larger, thus expanding the productive resources of the country, counteracting the monopoly power that a few very large firms might otherwise have, and increasing income and employment. A study like this throws light on the processes and problems of such growth and thus aids materially in planning the kinds of developmental measures that are most likely to be effective in encouraging it.

Another interesting finding is that the entrepreneurs responsible for the growth of these medium-scale firms have come from a wide range of social and economic backgrounds. Various castes and communities are represented. Some of the entrepreneurs were originally poor rural artisans or factory workmen; others come from well-to-do merchant and land-owning families. Classified by previous occupation, merchants form the largest single group, if domestic merchants and importers are counted together; if these are counted separately, then—and this is a surprising, suggestive and, I should think, encouraging fact from the viewpoint of India's development prospects—the largest group among the entrepreneurs is the graduate engineers.

Dr. Berna has not merely collected facts and presented statistical tables. He has done an excellent job of analysis and interpretation, which will surely be helpful to all those concerned with promoting and guiding India's industrialization. From his analysis it appears that, as a group, the entrepreneurs studied have performed their functions fairly well, and some exceptionally well, considering the handicaps under which they have worked (shortages of materials, inadequate technical knowledge and lack of technical counsel, inadequate capital and credit, inadequate distribution systems, lack of facilities for market analysis, etc.). One of their outstanding weaknesses as entrepreneurs and managers appears to be lack of skill in employee relations. They are also weak in shop layout, in marketing outside their immediate localities, and in various other respects. Dr. Berna feels that the performance of most of these enterprises could be improved, and their contribution to India's economic and social progress could be increased, if certain kinds of help were made available to them. He rates help in techniques of production and management first in importance, even above help in financing. The State Bank has recently eased the short-term credit problem for these enterprises by its new programme of small industry finance, the author reports, but the problem of longer-term capital remains to be effectively attacked, and on this he has an interesting suggestion.

India has one of the outstanding programmes anywhere in the world for assisting small industrial firms to modernize and develop. The programme is built around Small Industries Service Institutes, of which there are now at least one in each State. These are the nuclei for an industrial extension service which provides technical and managerial counselling, backed up by help in materials procurement, marketing, financing, factory premises (industrial estates), hire-purchase of machinery, and in other ways by such agencies as the National Small Industries Corporation, the industrial departments of the various States, and the State Bank. Dr. Berna contends, as did many of the entrepreneurs whom he interviewed, that medium-scale manufacturers have been somewhat neglected. His argument is persuasive that there would be considerable benefit to India from focussing more developmental effort, of the kind already directed towards small industry, on medium-scale industrial enterprises like some of those that he studied. Such enterprises have already demonstrated good capacity for growth, but are still not large enough to employ their own full-time staff experts, to have access to organized capital markets, to hire their own marketing research, or to enjoy other advantages of really big firms. Recently there have, in fact, been some developments in the direction Dr. Berna recommends. At the time he did his field work, the official definition of "small-scale industry" was establishments having no more than 50 workers with power or 100 without power and no more than Rs. 5 lakhs (about $100,000) of fixed capital. Now (early 1960) the limit on number of workers has been dropped, so that all small factories having less than Rs. 5 lakhs of fixed capital are eligible for the assistance of the Small Industries Service Institutes and for other benefits under the Government's small-scale industries programme. Also, the National Productivity Council (founded 1958) and its local councils may be especially helpful to medium-scale manufacturers, by making them aware of improved management methods.

* * * *

A programme of research and publication on small industry, particularly as related to the problems of newly industrializing countries, was undertaken at the International Industrial Development Center of Stanford Research Institute in early 1958. The programme is assisted by a grant from The Ford Foundation. Among the questions which the research is designed to illuminate are these:

Must small manufacturing enterprises be more or less completely superseded by large ones as an economy modernizes? Or is there a place for both large and small units in modern production? If there is a place for both, in what fields should small manufacturing units be encouraged, and what fields are not appropriate for small-scale operations? What can be done to improve production techniques and management in small industry? Can small industrial enterprises serve as seedbeds of entrepreneurial talent, and can the growth of some of these enterprises contribute significantly to the creation of medium-scale and large-scale industry? How can small industry be aided to obtain capital for modernization and growth? What happens to the traditional craft and cottage industries in developing economies, and what economic and social issues are involved in the question of giving special protection to them or assisting them to modernize? How have various countries handled these problems? What mistakes have they made, and what useful ideas and practical methods have they developed?

Dr. Berna's study is issued as part of this programme. It bears on a number of the questions mentioned above, but particularly on the ability of small manufacturing enterprises to grow and their problems in doing so.

As a scientific contribution the study will be valuable to students of economic development all over the world, but it will have a special interest and considerable practical value in India. For this reason, publication in India seemed appropriate, and the opportunity to cooperate with the Asia Publishing House in issuing it is particularly welcome.

EUGENE STALEY

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INTRODUCTION

PURPOSE AND SCOPE OF THE STUDY

ECONOMIC DEVELOPMENT is the outcome of human activity. At the centre of the process stands man: as organizer of the community's resources, as worker, and as user of the goods produced. Of these three roles which man plays in the process of economic development, that of organizer of the factors of production is all important. For unless the skills and resources of the community are organized into efficient production units, man's labour must remain largely unproductive, and his level of consumption low.

These considerations focus attention on the importance of entrepreneurship in economic development. The entrepreneur is, by definition, the change-producing force in economic life, and the organizer of society's productive resources. To some economists the problem of entrepreneurship appears as the most acute problem faced by present-day under-developed countries, and the shortage of entrepreneurs as possibly the most potent limiting factor on their economic development.[1] Scarcity of entrepreneurship has important political significance as well. For unless capable entrepreneurs come forward in sufficient numbers in these countries, the State must necessarily play an increasingly active role in the field of economic development, whether it wants to or not. The need for rapid progress is too urgent, and the people's demand for it too vocal for Governments to stand aside.

Students of economic development, therefore, understandably desire to know more about this key figure, the industrial entrepreneur.[2] How are such men produced in a society which has little or no industry? From what social and economic groups do they come, and by what steps do they find their way into industry? What are the sources of their initial capital? What attitude do they take toward industry once they have entered it—are they enterprising, imaginative, eager to grow and exploit new opportunities, and willing to accept the risks involved in doing so; or are they content to drift along uninterested in new methods and activities and indifferent to the growth and improvement of the enterprises they have established? If they are interested in developing and improving their firms, what obstacles do they encounter in attempting to do so, and what accounts for the success of some and the failure of others? How, finally, can they be helped, by Government or in other ways, to make the contribution toward development which society expects of them?

---

[1] Cf. Professor Dupriez, summation of the 1953 Round Table Discussion of the International Economic Association held at Santa Margherita, Italy. L. Dupriez (ed.), *Economic Progress: Papers and Proceedings of a Round Table Held by the International Economic Association* (Louvain: Institut de Recherches Economiques et Sociales, 1955), pp. 22–4. Ragnar Nurkse, in his authoritative exposition of the problem of capital formation in under-developed countries brings out clearly the central role of the entrepreneur in initiating the process of balanced growth by which these countries can break the "vicious circle of poverty" in which they are caught. See his *Problems of Capital Formation in Under-developed Countries* (New York: Oxford University Press, 1953), pp. 12–17.

Unfortunately, the empirical data required for answering these interesting and important questions are largely lacking. Moreover, since conditions vary so widely from country to country, and even from region to region within some countries, the data required are such as can be gathered only by what Professor Gerschenkron has called "a great deal of patient monographic research."[3] The present study is intended as such a monograph. As such, and because it is the work of a single student, the study is necessarily severely limited in scope and coverage. The area chosen for investigation was Madras State in South India, and the range of industry investigated comprises medium-scale firms in the light-engineering industry of that region.[4] The general object of the study is to answer the questions just listed, for the particular area and industry chosen.

By "entrepreneur" in this study is meant the person (or group of persons) responsible for the existence of a new industrial enterprise.

---

[2] Economic development and industrialization are not, of course, synonymous terms. In actual practice, however, present-day under-developed countries are pinning their hopes for economic progress on the growth of industry. The problems of industrial entrepreneurship, as distinct from other types, thus assumes particular importance and urgency.

[3] A. Gerschenkron, "Social Attitudes and Economic Environment in Relation to Entrepreneurship and Technology," *Economic Progress*, p. 307.

[4] For details concerning definitions, exact coverage, method used, etc. see the Appendix at the end of this study.

Madras State was selected because it is an area exhibiting the characteristics generally associated with the so-called under-developed area: concentration on agriculture as the main source of livelihood, together with low productivity in agriculture; relative unimportance of factory industry as compared with handicraft and cottage industry; and, as a consequence of these factors, low per capita incomes. At the same time, the region is one where there has been considerable development of factory industry, particularly since the end of the Second World War. The area is in transition to a more industrialized state, making it an ideal region for the study of emergent industrial entrepreneurship and the growth of small industry.[5]

The light-engineering industries of the area were singled out for investigation because of the important bearing they have on the future industrialization of any under-developed area. A glance at the list of industries covered, as given in the Appendix, is sufficient to indicate their importance. A second reason for concentrating on these industries was the fact that most of the industrial development which has been taking place in the area has been in the light-engineering field.

Medium-scale firms (defined as firms employing from fifty to two hundred and fifty employees, for reasons explained in the Appendix) were concentrated on, finally, because this range of industry has been very much neglected in India, from the viewpoint of both research and economic policy. A number of studies dealing with problems of small industries have been made by such agencies as the Government of India's Small Industries Service Institutes, and a number of programmes are in force to assist them. Medium-scale firms, in contrast, have been left to struggle on practically alone, and very little information on their problems is available. Another reason for singling out these firms for study is the fact that much interest exists in India at the present time regarding the factors which promote or inhibit the growth of small enterprises. One widely held view is that small firms rarely, if ever, develop into medium-and large-scale units, and there has been much discussion why this should be so.[6] Part of the object of the present study is to test this hypothesis by investigating the origins and growth patterns of medium-scale enterprises, and thus determine whether they have, in fact, developed from small beginnings and if so, what factors account for their growth. Limitation of the coverage to medium-scale firms, finally, had the advantage of reducing the number of firms investigated to manageable size, given the time and resources at the writer's disposal, and the intensive investigation he wished to make.

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[5] See Chapter II.

[6] See James T. McCrory, *Small Industry in a North Indian Town: Case Studies in Latent Industrial Potential* (New Delhi: Government of India, Ministry of

The present study is, then, a study of a group of entrepreneurs in a particular region of an under-developed country. Its primary purpose is to investigate the background of these men, the ways in which they have made the transition to industry, and the problems they have faced in establishing and building up their enterprises. A secondary purpose is to attempt some evaluation of their performance as industrial entrepreneurs.

At the same time, the study is an investigation of the problems of one sector of private industry in a country attempting to industrialize rapidly by means of a comprehensive Plan of public expenditure.[7] It is also a study of the factors affecting the growth of small firms in an under-developed country.

Chapter I discusses the basic concepts and theoretical framework which have guided the approach used. Chapter II presents a picture of the economic environment in the midst of which the entrepreneurs studied are carrying on their activities. Chapter III introduces the entrepreneurs and discusses their background and the paths by which they found their way into industry. Chapter IV analyses the problems they face in their efforts to develop the enterprises they have established. This chapter fills out the picture of the economic environment presented in Chapter II. Chapter V deals with growth of firms and technology, and Chapter VI with entrepreneurs' mobility in adapting to changing circumstances. These two chapters furnish the basis for such evaluation of entrepreneurial performance as can be made. Chapter VII summarizes the conclusions reached in the course of the study, and ventures some recommendations for future policy toward small-and medium-scale industry in India.

Commerce and Industry, 1956). The findings of the present study on the subject of growth are contrasted with McCrory's below in Chapter v, pp. 144–76.

[7] With the completion of India's First Five Year Plan in 1956, a Second Five Year Plan was inaugurated aiming at rapid industrialization of the country, and in particular, the building up of heavy industry. See *The Second Five Year Plan* (New Delhi: Government of India, Planning Commission, 1956).

CHAPTER I

ENTREPRENEURSHIP IN UNDER-DEVELOPED COUNTRIES

Definition of Entrepreneurship

MODERN INTEREST in the entrepreneur as a key figure in economic progress stems in large part, as is well known, from the work of Schumpeter. In Schumpeter's system, entrepreneurship is essentially creative activity. The entrepreneur is the innovating individual who introduces something new into the economy: a method of production not yet tested by experience in the branch of manufacture concerned, a product with which consumers are not yet familiar, a new source of raw materials or of new market hitherto unexploited, and other innovations in the strict sense of the term.[1]

It is sometimes said that this type of entrepreneur is needed in under-developed countries. Thus, Professor Dupriez writes:

> The type of entrepreneur who exploits possibilities as they present themselves within a limited time-horizon and mostly on a small-scale—the entrepreneur of J. B. Say—can only produce limited results. Society must produce Schumpeterian innovators with a long time-horizon and capable of achieving substantial transformations.[2]

Unfortunately, such innovators are rarely found in under-developed countries, and precisely because the countries are so under-developed. In the words of the ancient proverb chosen by Marshall as the motto of the *Principles, Natura non facit saltum.* A country with little or no industrial tradition can hardly produce innovators capable of substantial transformations without first producing, and in large numbers, the humbler type of entrepreneur. Economy-shaking innovators, like great scholars, are the exceptional few who emerge at the summit of a broadly based pyramid. Such men do not appear, and could not function, until a certain level of educational, social and technical progress has been achieved. They are at once a product of development and an agent of further development.[3]

---

[1] Joseph A. Schumpeter, *The Theory of Economic Development,* trans. by R. Opie (Cambridge: Harvard University Press, 1934), p. 66.

[2] *Economic Progress,* p. 22.

But the need for "Schumpeterian innovators" in countries which are just beginning to industrialize must not be over-stressed. The technologies and products needed by these countries have already been developed in the more advanced countries. Men are needed who can adapt these technologies and products to the particular conditions of less advanced countries. These countries primarily need, not innovators, but the "imitators" who, even in Schumpeter's system, are primarily responsible for transforming the forward step of the pioneer into a magnitude of economic importance.[4]

The importance of these humbler entrepreneurs who "exploit possibilities as they present themselves and mostly on a small scale" must not be under-estimated. In the first place, such adaptation requires no mean ability. It often involves what has aptly been called "subjective innovation," that is, the ability to do things which have not been done before by the particular industrialist, even though, unknown to him, the problem may have been solved in the same way by others.[5] Establishment and successful operation of a manufacturing enterprise in under-developed countries often requires such ability, as well as considerable resourcefulness in adjusting to the changing circumstances which characterize developing countries. Men capable of doing so are in short supply, and contribute much to economic development. Their enterprises may be small and unimpressive when judged by the standards of more developed countries. But their success points the way for others, and given the high propensity to imitate which exists in less developed areas, can set in motion the "chain-reaction" which leads to cumulative progress. There is much truth in the statement that the most important ingredient in the so-called "favourable climate of entrepreneurship" in countries which stand at the threshold of industrialization, is the "example set by a significant number of businessmen successfully engaged in certain activities, particularly in manufacture."[6]

---

[3] For this reason, as Hans Singer has pointed out, the Schumpeterian system is not really a theory of how economic development starts from very low income levels, but of how it "continues and proceeds, once it has reached a certain stage characterized by the creation of innovating private entrepreneurs, and by the creation of a kind of society in which they can operate." See his "Obstacles to Economic Development," *Social Research*, xx (Spring, 1953), p. 23. Nor did Schumpeter ever intend his theory as an explanation of how development actually starts. For other reasons why Schumpeter's model does not fit the circumstances of the under-developed countries of the real world, see *ibid.*, pp. 19–31 and Fritz Redlich, "Entrepreneurship in the Initial Stages of Industrialization (with Special Reference to Germany)," *Weltwirtschaftliches Archiv*, 75 (1955 II), pp. 59–65.

[4] Henry G. Aubrey, "Industrial Investment Decisions," *The Journal of Economic History*, 15 (December, 1955), p. 338. See also the paper by the same author, "Investment Decisions in Underdeveloped Countries," in *Capital Formation and Economic Growth*, A Report of the National Bureau of Economic Research (Princeton: Princeton University Press, 1955), pp. 397–440.

[5] Redlich, "Entrepreneurship in the Initial Stages . . .," p. 62.

There is another reason why the humbler type of entrepreneur is important in under-developed countries. These countries are placing great stress in their economic planning on development of small and medium-scale industry. There are sound economic reasons for this in countries where capital is scarce, investors cautious, markets severely limited because of low purchasing power, and entrepreneurs largely inexperienced in the ways of industry. In addition, many countries aspire to a decentralized industrial structure in which ownership and economic power will be distributed widely. In India this goal has become a corner-stone of economic policy.[7] Small- and medium-scale industry thus have an important role to play in the world's poorer countries.

Such, then, is the entrepreneur of the present study. He is, in the concrete, the person who brings into existence a new industrial enterprise, either alone or in collaboration with others. He is, perhaps, a rather pedestrian figure by Western standards: an adaptor and imitator much more than a true innovator; a man who has much more in common with Marshall's organizer of the factors of production than Schumpeter's creative disturber—but in a poor country attempting to industrialize, a potent change-producing figure nonetheless.

Evaluation of Entrepreneurial Performance

If formation of an adequate number of entrepreneurs is a prime need of present-day under-developed countries, the type of entrepreneur who comes forward is also important. It makes a great deal of difference to a country's rate of progress, for example, whether its industrialists take a "short-term" approach to industry, regard the productive process as something fixed and static, are unwilling to tie up more than an absolute minimum of capital in plant and machinery, and remain preoccupied with trade and quick turnover as the sole source of profit[8]; or whether they exhibit what Professor Dupriez refers to as a "long time-horizon," are willing to plough back earnings and wait for returns, are anxious to improve technologically, and are alert to new opportunities and willing to incur the risks involved in exploiting them. The country being developed by entrepreneurs of the second type, rather than the first, will, other things being equal, move down the road of economic progress at a much faster pace. It is clearly not enough that a country develops an adequate supply of industrial entrepreneurs. It is also of vital importance that they be of the right type.

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[6] Aubrey, "Industrial Investment Decisions," p. 338.

[7] Cf. the Government of India's "Industrial Policy Resolution," of April 30, 1956. *Programmes of Industrial Development 1956–61* (New Delhi: Government of India, Planning Commission, 1956), pp. 434–9.

But what precisely does "right type" mean, and how can entrepreneurs' performance be evaluated in practice?

The first question to be decided is exactly what we are going to attempt to evaluate. Even the humbler type of entrepreneurship dealt with in the present study is a complex phenomenon involving numerous sub-functions. Chief among these sub-functions are business promotion, capital provision and risk-bearing, technical innovation and adaptation, and business management.[9] In an economically advanced country there is a tendency for each of these activities to be carried out by separate persons or groups, while in an under-developed country one person usually has to perform all or most of them. This is one of the chief reasons why entrepreneurship in such countries is so scarce a resource, and why it is so difficult to develop an adequate supply of industrial entrepreneurs.

The list of sub-functions just enumerated brings out clearly the fact that entrepreneurship is basically a type of human skill, or more accurately, a combination of skills and abilities. The most important of these are organizational and administrative ability, some degree of business and technical knowledge,[10] alertness to opportunity, willingness to accept change, and the psychological capacity to assume risk. It is evident that entrepreneurship is an exceedingly complex entity hardly capable of evaluation if what is desired is an exact measure of the personal entrepreneurial ability of a particular entrepreneur. This person's achievements could not be taken as an adequate criterion of his personal entrepreneurial ability, since one would have to know just what part good luck, such as the fortuitous removal of competitors, or unexpected windfall profits, played in his success; and conversely, to what extent his failure to succeed was due to circumstances completely beyond his control. Clearly, the data required to support a firm judgment in the matter could scarcely be amassed.

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[8] These are the qualities found by McCrory to be characteristic of industrial entrepreneurs with a mercantile background. See *Small Industry in a North Indian Town*, p. 13. The opinion is widespread that India's medium-scale industrialists are in fact from a mercantile background, and that generally speaking they take the approach to industry just described. Part of the object of the present study is to examine this hypothesis.

[9] *Processes and Problems of Industrialization in Under-developed Countries* (New York: United Nations, Department of Economic and Social Affairs, 1955), p. 30

Fortunately, the measurement of entrepreneurial ability in individual cases, while it may be of interest to the psychologist, is not the concern of economists. What is of importance from the economic point of view is the evaluation of the activity of a group of entrepreneurs, and the effect they are having on the country's rate of progress. This is not to say that economists are completely uninterested in so-called basic entrepreneurial attitudes, since these are an important clue to the contribution a country's entrepreneurs are likely to make to its development. But the only reliable test by which attitudes can be judged is the objective test of activity. In the present study, such evaluation as will be attempted concerns the activity of entrepreneurs only, and not their subjective ability and attitudes.

This brings us to the question of the appropriate criteria for evaluating entrepreneurial activity in under-developed countries. The writer's interest in this question was first aroused by McCrory's study of small industry in a North Indian town. In contrast to industrial entrepreneurs of a mercantile background[11] he found that the craftsmen-entrepreneurs he encountered had "all the qualities of good entrepreneurs" (except success).[12] These qualities he describes as follows:

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[10] Although personal possession of technical knowledge by the entrepreneur is not essential to effective entrepreneurship, it is likely to be required in some degree in under-developed countries, where good technicians are difficult to find and hard to retain, particularly by small firms.

[11] See above, p. 7.

> They live frugally and save. They are highly skilled themselves or employ skilled personnel. They are quality-conscious, able to make improvements in technique on their own, quick to learn from others.
>
> As entrepreneurs they are tenacious to an extreme. When one industrial venture fails, their first act is to begin scraping together savings for another.
>
> As manufacturers they are versatile and resourceful with the few resources at their command. If they cannot buy a machine they will build it themselves. If they cannot reproduce a technique they will improvise one of their own. Most are as sensitive to new demands and market changes as their information and their circumstances permit.

The following criteria are expressed or implied in this description of the "good entrepreneur." (*a*) He is an enterprising individual in the ordinary sense of the term, that is, energetic, resourceful, alert to new opportunities, able to adjust to changing conditions, and willing to assume the risks involved in change. (*b*) He is interested in advancing technologically and in improving the quality of his product. (*c*) He is interested in expanding the scale of his operations, and reinvests earnings to this end.

In the writer's opinion, these are the basic criteria which must be used in evaluating entrepreneurs' performance in an under-developed country. They sum up, first of all, what is usually implied in the phrase "spirit of enterprise." It is difficult to conceive of a first-rate industrial entrepreneur who is not adaptable to change, anxious to grow larger and improve technologically.[13]

In the second place, they accord with the needs of under-developed countries attempting to industrialize rapidly. Those needs must be the basic criterion for evaluating the performance of entrepreneurs. Entrepreneurship is society's most important single productive force, and the chief instrument at its disposal for achieving economic progress. From the viewpoint of the social scientist, entrepreneurs' performance must be judged by the contribution it makes to development.

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[12] *Ibid.*, p. 3. For the reasons why they do not succeed, see the same study, pp. 19–20. These reasons are summarized below, in Chapter v, pp. 144-76.

[13] It is of interest that entrepreneurs themselves, or at least those encountered in the course of the present study, use attitude toward growth as the criterion for distinguishing a "real industrialist" from a mere "businessman." They are quite conscious of the distinction, the test being whether a man "puts in" or "takes out" of his business. Many conflicts between partners of different backgrounds take their origin here.

The first contribution a country expects of its entrepreneurs is establishment of new industrial enterprises. That is obvious, and a matter of definition. Not so obvious, perhaps, is the importance of firms' expansion, at least for a time, once they have come into existence. Greater industrial production and the drawing of unemployed persons into productive activity are primary needs facing every industrially backward country. A given rise in production and employment, however, can often be achieved more cheaply, in terms of capital, by expanding an existing enterprise than by establishing a new one. There are several reasons for this.

In the first place, industrial units in under-developed countries are generally established on less than optimum scale. The reasons are the limited amounts of initial capital at the disposal of entrepreneurs, their caution due to inexperience in industry, and the restricted markets for industrial products. For some time after establishment, accordingly, there is scope for achieving economies of scale through growth of the enterprise.

In the second place, existing firms are already equipped with buildings, auxiliary power plants, foundries and other basic facilities which must be duplicated when a new firm is established. Closely related to this factor is the tendency of entrepreneurs to seek self-sufficiency when setting up an industrial enterprise. This desire was very marked among the firms studied.[14] Even the smallest unit must have its own foundry, for instance, even though it remains unused nine-tenths of the time. The chief reason for this phenomenon is suspicion of other producers and fear of becoming dependent on a potential competitor. The result is that firms often come into existence with excess capacity in one or more departments. As production and employment expand, this slack is taken up and the plant is utilized more fully.

These considerations are important in countries faced with acute capital shortage and consequently under the necessity of conserving capital wherever possible. In addition, there is the fact that an already established entrepreneur has acquired some experience in the operation of an industry and has established credit and marketing connections. A new entrepreneur entering the field has less experience and faces greater risk of failure, since mortality of new ventures is notoriously high in under-developed countries.[15] When an established firm expands, accordingly, additional output and employment are provided with less risk of failure. It is important that business failures be kept to a minimum since every failure involves some waste of resources, and further weakens the confidence of investors already overly shy.

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[14] See below, Chapter III, p. 99.

Unlimited expansion of firms, of course, is not desirable nor recommended here. Diseconomies of scale and possible concentration of economic power are the limiting factors. It is not possible to say how soon these factors will begin to operate in any given enterprise, but it is safe to say that when firms begin on as small a scale as those under study[16] their expansion for a considerable length of time is desirable. Interest in the growth of the firms they have established, accordingly, is one criterion which will be used in the present study for evaluating entrepreneurs' performance.

Mere growth of firms, however, is obviously not enough if economic development is to move forward at the maximum possible rate. Since capital is extremely scarce in under-developed countries it must be used with maximum efficiency. Constant effort must be made to improve technology so that highest possible output is obtained from available resources. Quality of output must be raised and costs lowered, so that prices can fall and lower income groups be brought into the market, permitting that widening of the market[17] for products of industry which is so urgently needed in poor countries if industry is to expand rapidly and real incomes rise.

It is important, accordingly, that entrepreneurs constantly strive to raise productivity and improve the quality of output through the application of more efficient production methods, better plant layout and organization of production, improved labour relations, more effective marketing techniques, and all other available devices for obtaining maximum output at lowest cost. This effective interest in technological improvement is thus a second criterion for evaluating entrepreneurs' performance in under-developed countries, and will be used in the present study.

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[15] For a discussion of the factors which make for high risk in establishing industrial enterprises in under-developed countries, see Aubrey, "Industrial Investment Decisions," pp. 338–9.

[16] See below, Chapter III, p. 88.

[17] In the economic not the geographic sense. For a discussion of the difference and its implications, see Nurkse, *Problems of Capital Formation . . .*, pp. 6–8.

Not so clear-cut as growth of firms and technological advance as a criterion of "good entrepreneurship" is another aspect of industrialists' activity, namely, entrepreneurial mobility. It is desirable that entrepreneurs be flexible and able to adapt to changing conditions. Economic development is a highly dynamic process characterized by continual and often rapid change. As industry grows and income rises patterns of demand shift, new products are needed, and new opportunities appear for the production within the country of goods hitherto not in demand, or imported from abroad. Very often, too, an established enterprise can be saved from failure or stagnation (as will appear subsequently[18]) by timely shifts into new lines of production as competition grows and markets shift. A developing economy, accordingly, needs entrepreneurs who are alert to new opportunities and willing to incur the necessary risks in exploiting them.

But a developing country also needs the benefits which come from specialization, and it must be recognized that excessive entrepreneurial mobility can rob a country of these benefits. Entrepreneurs in under-developed countries are notoriously quick to shift investments into new fields in search of quick profits.[19] Too frequent shifts prevent attainment of proficiency in any single line of production, and work against the improvement of quality and technological advance needed in industrially backward countries. Such shifts may be signs of great enterprise and initiative on the part of entrepreneurs. It is much more difficult to decide whether their activity promotes or hinders economic development.

The problem is not merely an academic one, and in practice commonly takes the following form: when new products are needed, is it better that they be produced by diversifying established enterprises, or by new ones founded for the purpose? In a free-enterprise economy this problem solves itself through the medium of private investment decisions, the operation of the profit-motive tending to bring about the most efficient organization of production. But in most under-developed countries, even the private sector of the economy is not completely free. In India, for example, over-all planning includes guided development of the private sector through an extensive system of licensing which covers expansion as well as establishment of new enterprises.[20] Difficult decisions must be made regarding the relative merits of confining entrepreneurs to one line of production so that the benefits of specialization can be realized and of permitting entrepreneurs greater initiative and enterprise in the search for profitable opportunities. The question must ultimately be decided on the basis of the costs of alternative courses of action. These costs include the possible weakening of firms through failure to diversify and losses attributable to insufficient specialization. Collection of data on costs was outside the scope of the present study, since it would amount to another full-scale investigation.[21] Consequently, no complete answer can be given as to whether the mobility displayed by the entrepreneurs under study has been desirable or undesirable from the social point of view, and mobility cannot be used as a criterion of good entrepreneurship. Entrepreneurial mobility is an important phenomenon in the early stages of industrialization, however, and data on the subject were gathered in the course of the investigation. The question of evaluating entrepreneurs' activity in this respect will be taken up again after the data have been reviewed and analysed.[22]

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[18] See below, Chapter VI.

[19] There are often sound business reasons for these frequent shifts, as pointed out by Aubrey, " Industrial Investment Decisions," pp. 340–42.

If the criteria formulated be accepted, the question remains as to how they are to be applied in any attempt to evaluate the performance of an actual group of entrepreneurs. Two possible methods suggest themselves, although only the second appears feasible in actual practice.

The first method would be to attempt a ranking of individual entrepreneurs on the basis of performance in the areas of entrepreneurial activity just discussed. The difficulties in the way of this procedure are obvious, and probably insuperable. Not only would *an entrepreneur's activity in each area have to be assigned a "grade," but these ratings would then have to be combined, with appropriate* weighting, into some over-all index of his general performance. Even assuming that entrepreneurs could be rated precisely on each head separately, the difficulties of combining these ratings into an over-all measure and then comparing firms in different industries and of very different ages are such as to render the method impracticable.

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[20] See below, Chapter II, pp. 36-41.

[21] Even when detailed information on costs is available, it is extremely difficult to come to a firm decision in the matter. See, for instance, the discussion in the recent report of the Indian Tariff Commission on the automobile industry as to whether automobile manufacturers should be permitted (as some wish) to produce their own diesel engines or be required to buy them from established suppliers. *Report of the Tariff Commission on the Automobile Industry* (New Delhi: Government of India, Tariff Commission, 1957), pp. 67-8.

[22] See below, Chapter VI, pp. 208ff.

A second, less ambitious, approach to the problem aims at forming a judgment of a more general nature. This method consists in assembling as complete information as can be obtained in respect of entrepreneurs' activity in developing and improving their enterprises, and letting impressions emerge as the data accumulate. In this way some definite, if rather general, conclusions can be reached regarding a particular group of entrepreneurs, even though the performance of individuals in the group cannot be evaluated precisely. The conclusions reached will be necessarily somewhat impressionistic, but can yield valuable information regarding a country's entrepreneurs. Something can be concluded, for example, about their "time-horizon"—whether, as a group, they are fully committed to industry, anxious to expand and willing to tie up capital and wait for returns; or whether they more resemble financiers than industrialists properly so called, in search of quick profits and ready to shift investments at a moment's notice. Important conclusions can be drawn regarding their awareness of the need of raising productivity, and what problems they face in this respect. Such conclusions may not tell us as much as we would like to know about the qualities of entrepreneurial performance. But they tell us something, and can lead to some policy recommendations. This second method was used by McCrory in his study of small industry in North India, and will be adopted here. It has distinct limitations but suffices in view of the main emphasis and scope of the present study.[23] In any case, we must be satisfied with it until a better method is devised for evaluating the exceedingly complex phenomenon of entrepreneurial activity.

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[1] See above, p. 4.

CHAPTER II

THE ECONOMIC ENVIRONMENT

THE PURPOSE of this chapter is to provide the reader with background information on the economy of Madras State, the region where all the firms under study are located, and recent economic developments in that area. Certain economic conditions prevailing in the region will be discussed in greater detail when the problems faced by entrepreneurs are analysed.[1]

General Information

Madras State comprises an area of 50,110 square miles in the southern-most part of India, an area approximately equal in size to Czechoslovakia. The population at the time of the last census (1951) was 29,974,936.[2] The state ranks fifth in population among the fourteen states of the Indian Union, and eleventh in area. Density of population of 598 per square mile is the third highest in India, after Kerala and West Bengal. The state is predominantly rural in character. In 1951 urban population was estimated at approximately twenty-two per cent, and rural population at seventy-eight per cent of the total population.[3]

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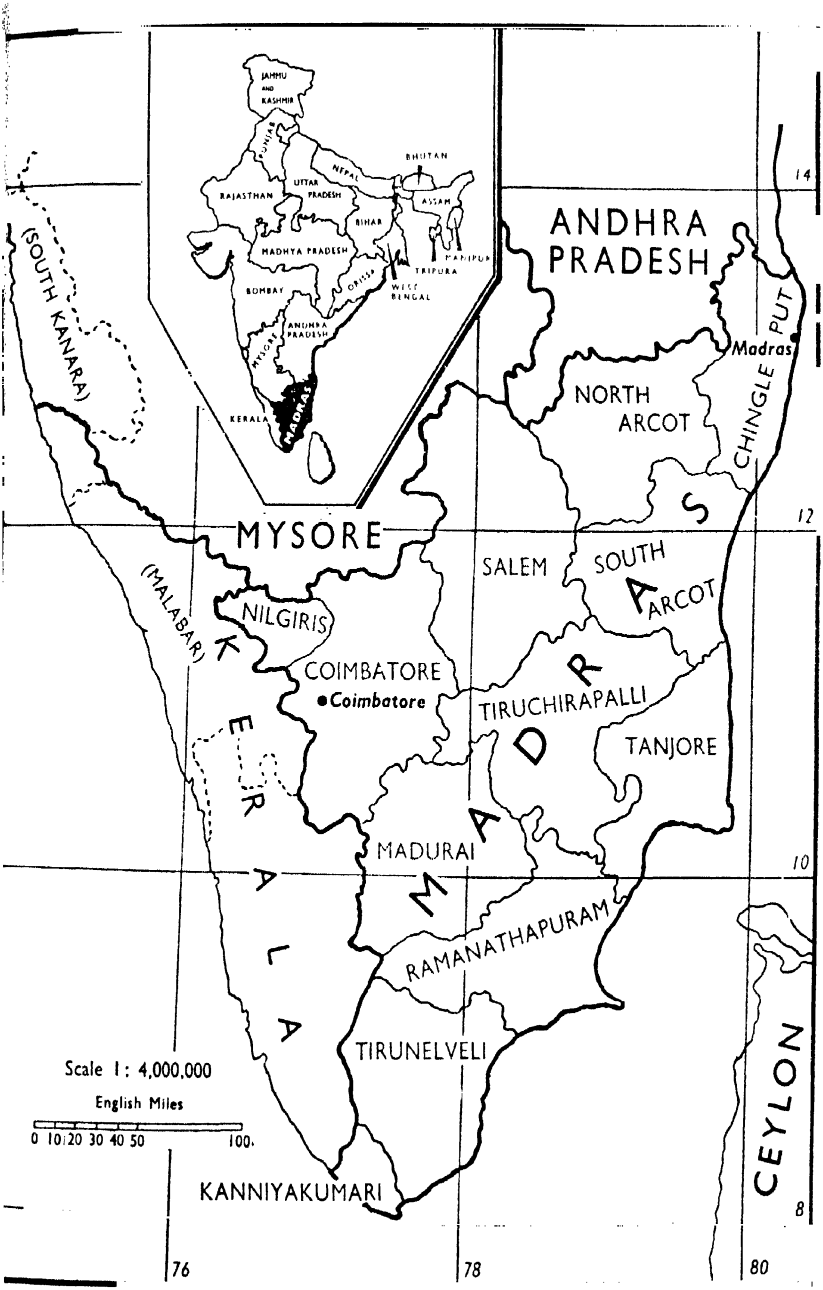
[1] See below, Chapter IV, p. 101.

[2] *India 1957* (New Delhi: Government of India, The Publications Division, Ministry of Information and Broadcasting, 1957), p. 11. Census data are adjusted to the boundaries of the state as determined by the States Reorganization Act which took effect on November 1, 1956. The state's boundaries have changed twice since 1951. In that year population was 57,016,002 and area was 127,790 square miles. On October 1, 1953, eleven Telugu-speaking districts were separated to form the newly created State of Andhra Pradesh, reducing the population of Madras State to 35·7 million and its area to 60,362 square miles. With the reorganization of Indian States along linguistic lines in 1956, Madras lost two more districts, namely Malabar and South Kanara, and gained a small area in the extreme south to bring population and area to the figures quoted above. See *Madras in Map and Pictures* (Madras: Government of Madras, The Director of Information and Publicity, 1955), p. 5.

[3] *Madras in Maps . . .*, pp. 8–10. Data are from the Census of 1951. Unless otherwise noted, all statistics presented in this chapter include Malabar and South Kanara Districts, since data adjusted to the limits of the state as determined by the States Reorganization Act of 1956 were not available at the time of writing this book. For purposes of comparison, the percentages of urban and rural population in the whole of India were estimated in 1951 at 17·3 and 82·7 per cent respectively. *India 1957*, p. 16.


JAMMU AND KASHMIR
PUNJAB
RAJASTHAN
UTTAR PRADESH
NEPAL
BHUTAN
ASSAM
BIHAR
MANIPUR
TRIPURA
MADHYA PRADESH
WEST BENGAL
ORISSA
BOMBAY
ANDHRA PRADESH
MYSORE
KERALA
MADRAS
ANDHRA PRADESH
(SOUTH KANARA)
MYSORE
NORTH ARCOT
Madras
CHINGLEPUT
SALEM
SOUTH ARCOT
(MALABAR)
NILGIRIS
COIMBATORE
Coimbatore
TIRUCHIRAPALLI
TANJORE
KERALA
MADRAS
MADURAI
RAMANATHAPURAM
TIRUNELVELI
KANNIYAKUMARI
CEYLON
Scale 1: 4,000,000
English Miles
0 10 20 30 40 50 100
14
12
10
8
76
78
80

The principal city and capital of the state is Madras City, with a population at the time of the last census of 1·5 millions,[4] to which probably several hundred thousand have been added since 1951. Madras City is the third largest city in India. Located on the Bay of Bengal, it is also India's third most important sea-port, after Bombay and Calcutta, and an industrial centre of importance.

The second most important city is Coimbatore, which, with Madras City, figures prominently in the present study. Coimbatore is situated on the western side of the state and is listed in the Census of 1951 as having a population of 197,755,[5] but has grown much since then. It is the main centre of the textile industry, the state's most important factory industry.

After Bombay and West Bengal, Madras State is the third most industrialized state in the Indian Union, even though slightly less than one per cent of the population is employed in factory industry.[6] The state has potentialities for considerably more industrial development than has hitherto taken place, however. Important mineral deposits within the present borders of the state include bauxite, iron ore and magnesite in Salem District; extensive limestone deposits in Tirunelveli and Ramanathapuram Districts; phosphate, gypsum, mica, graphite, steatite, corundum and several other minerals in various parts of the state.[7] Recent investigations have revealed the existence of very large lignite (brown coal) deposits at Neyvelli in South Arcot District. The deposits cover an area of approximately one hundred square miles, and contain an estimated two billion tons of lignite.[8] Most of these mineral resources are as yet untapped, however.

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[4] *Ibid.*, p. 17. [5] *Ibid.*

[6] Average daily employment in factories coming under the Factories Act of 1948 (i.e. in power factories employing ten or more persons, and non-power factories employing twenty or more persons) was as follows in the three states during the first half of 1955:

Bombay	830,017
West Bengal	635,923
Madras	332,571

Uttar Pradesh ranked fourth with a factory employment of 241,626. Total average daily employment in factories for the whole of India during the period was 2,619,485. (SOURCE: *Commerce Annual Review Number* (Bombay), December, 1956, p. A 108a.

[7] *Madras in Maps* . . . , pp. 41–2. [8] *Ibid.*

Other industrial possibilities are the establishment of a paper industry using the wood from the forests of the Nilgiris and Western Ghats, and of a glass industry based on the high-grade glass sand found in Chingleput District, presently being exported to North India.

Structure of the Economy of Madras State

The economy of Madras State is characterized by very heavy dependence of the population on agriculture and cottage industry for its livelihood and by a correspondingly low level of industrial development.

Predominance of Agriculture. The heavy dependence on agriculture is brought out in Table 1, which presents data on distribution of the population by means of livelihood. Percentages for the whole of India are included for purposes of comparison.

Average yields of principal crops approximate yields throughout the rest of India, which means that they are low by world standards.[9] Incomes in rural areas are correspondingly low and poverty widespread.

Cottage Industry. The low level of industrial development in Madras State is indicated by the fact, as seen from Table 1, that less than fourteen per cent of the population is dependent on non-agricultural production for their livelihood. Of these five million persons, the great majority are dependent on cottage and other non-factory industry.

The most important cottage industry in the state is handloom weaving. An estimated 500,000 handlooms, or twenty-five per cent of all handlooms in India and the largest number in any single state, are located in Madras. These looms provide employment for an estimated two million persons, including ancillary workers engaged in preparatory and finishing processes.[10] Handloom cotton

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[9] For data on crop yields in Madras see *Madras in Maps and Pictures*, p. 12; for average yields in India, *India 1957*, p. 239 and *India: Country Background Information Paper* (Rome: United Nations, Food and Agricultural Organization, 1953, Document FAO/53/12/10209), pp. 16–18.

[10] G. Ramachandran, Director of Handlooms, Madras, "Government Aid for Weavers: Progress of Madras Schemes," *The Mail* (Madras), March 6, 1957 (Special Supplement), p. 7.

Table 1
DISTRIBUTION OF POPULATION OF MADRAS STATE
BY MEANS OF LIVELIHOOD

Means of livelihood	*Madras State* *No. of persons*	*Percentage*	*India (percentage of population[a])*
A. Agricultural Classes:			
1. Cultivation of owned land	11,144,000	31·2	46·9
2. Cultivation of non-owned land	3,939,828	11·0	8·8
3. Cultivating labourers	6,187,179	17·3	12·6
4. Non-cultivating land-owners	719,703	2·0	1·5
TOTAL: Agricultural classes	21,990,710	61·5	69·8
B. Non-Agricultural Classes:			
1. Non-agricultural production	4,956,077	13·9	10·5
2. Commerce	2,698,905	7·5	6·0
3. Transport	673,103	1·9	1·6
4. Other services and misc. sources	5,413,694	15·2	12·1
TOTAL: Non-Agricultural Classes	13,743,779	38·5	30·2

SOURCE: For Madras State, *Madras in Maps* . . ., p. 10; for the whole of India, *India 1957*, p. 16. Data are from the Census of 1951.

[a] Total population of India in 1951 was 356·6 million.

weaving predominates, although there is also some silk weaving, hand-spinning of yarn, and handloom wool weaving.

Other important cottage industries in the state are the following: (*a*) manufacture of matches in the Sivakasi and Sathur areas of Ramanathapuram District; (*b*) palmyra fibre and leaf products in the Tuticorin and Tiruchendur areas of Tirunelveli District; (*c*) leather goods manufacture in Dindigul in Madurai District; and (*d*) rural and handicraft industries scattered throughout the state, including hand-pounding of rice, oil-pressing, gur manufacture, mat-weaving, manufacture of metalware, particularly brass utensils, toys, bangles, and many other small articles of a handicraft nature.[11]

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[11] *Madras in Maps* . . ., p. 40; T. K. Palaniappan, "Cottage Industries in Madras State," *Madras Information, Annual Number, 1956* (Madras: Government of Madras, The Director of Information and Publicity, 1956), pp. 108–13.

Factory Industry. As indicated above, although Madras is the third most industrialized state in the Indian Union, factory industry is at a very low level of development. At the end of 1955 there were 4,999 factories in the state, of which 4,909 were in operation. The number of powered factories employing ten persons or more was 3,653, and the number of non-powered factories employing twenty persons or more was 1,346. Average daily employment in these factories during 1955 was 321,865, or 0·9 per cent of the population.[12]

The following table indicates the industries in which the state's larger and more important factories are found.

Table 2
MAJOR FACTORIES IN MADRAS STATE BY TYPE AND NUMBER AS ON 31 DECEMBER 1955

Type	*Number*
Textile	105
Sugar	4
Cement	3
Glass	6
Tanning	50
Engineering	16
Chemical	34

SOURCE: *India 1957*, p. 417, and *List of Factories Coming under the Operation of the Factories Act, 1948, for the Year 1955, Madras State* (Government of Madras, Factories Department), 1955.

In terms of employment, the various industries of the state rank in order of importance as shown in Table 3.

As seen from the table, the textile industry is by far the most important factory industry in the state. The industry is primarily a spinning industry, power-looms being severely restricted by government order to protect the handloom industry. Cotton spinning predominates. Of all persons employed in textile manufacture during 1955, 87·7 per cent were employed in cotton mills. The remainder were employed in wool, silk and coir factories.[13] The

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[12] *Report on the Working of the Factories Act, 1948, in the State of Madras, for the Year 1955* (Madras: Government of Madras, Office of the Chief Inspector of Factories), p. 1. Employment figures are for 4,598 factories submitting returns, or 93·6 per cent of all factories in operation at the end of the year.

[13] Data computed from the factory list for 1955. Since the separation of Malabar and South Kanara Districts in 1956, coir manufacture is no longer important in Madras State.

Table 3

AVERAGE DAILY EMPLOYMENT IN FACTORIES COMING UNDER THE FACTORIES ACT (1948) IN MADRAS STATE DURING 1955 BY MAIN INDUSTRY CATEGORIES

	Industry	*Number employed* [a]	*Percentage*
1.	Textiles	118,076	36·6
2.	Processes allied to agriculture, food, beverages and tobacco	68,731	21·3
3.	Engineering [b]	48,725	15·2
4.	Chemicals, including matches and soap	20,647	6·5
5.	Non-metallic mineral products (clay, brick, tiles)	14,020	4·4
6.	Printing and allied trades	13,465	4·1
7.	Personal services (restaurants, etc.)	9,441	2·9
8.	Leather and leather products	9,043	2·8
9.	Wood and cork, including furniture	7,101	2·3
10.	Others	12,616	3·9
	TOTAL	321,865	100·0

SOURCE: Data computed from the *List of Factories, Madras State*.

[a] Figures include factories in Malabar and South Kanara Districts, no longer part of the state. The only important factory industries in these two districts are the coir branch of the textile industry, and the brick and tile industry, both largely concentrated in Malabar and South Kanara. Excluding the two districts, employment in the three main industries of Madras State are as follows:

Textiles	106,662
Processes allied to agriculture, food, etc.	51,750
Engineering	46,813

[b] Includes basic metal processes, metal products, machinery, electrical equipment and transport equipment including motor vehicle repair and railway workshops.

chief centre of the industry is Coimbatore District. Approximately half of all the mills in the state employing one hundred or more persons are located in that area, most of them in the immediate vicinity of Coimbatore City. Lesser centres are Madurai, Tirunelveli, Ramanathapuram and Salem Districts. Only one textile mill is located in Madras City but it is one of the largest in India with an employment of approximately 13,000 persons.

The agricultural processing, *food manufacturing and tobacco industry, the second largest employer, is scattered throughout the state and consists almost exclusively of small units.*

Of special interest for the present study is the engineering industry, the third most important branch of the state's factory industry. The industry, and particularly its manufacturing branch,[14] is concentrated in two main centres, Madras City and Coimbatore City, and their immediate environs. All except three of the state's thirteen large-scale[15] engineering-manufacturing plants are located in or near Madras City. Among these factories, to name the most important, are two of India's six automobile and truck manufacturing plants, a motorcycle factory, one of the largest bicycle plants in India, a factory for the manufacture of heavy machinery for sugar, cement and other factories, a large producer of diesel engines, and a recently established government-owned railway coach factory, the largest in Asia. Of the three large units located outside the Madras area, two are in Coimbatore (a textile machinery plant and a large producer of pumps); and one is in Tanjore (a steel rolling mill). The great majority of medium-scale manufacturing units, the special object of the present study, are also located in the vicinity of Madras or Coimbatore.

Growth of Industry Since World War II

As seen from the following table, industry in Madras State has been growing slowly in the postwar period, with a temporary setback during the recession of 1952-53.

The growth in employment in the state's three leading industries has been as given in Table 5 since the end of the Second World War.

As seen from the table, the textile industry underwent considerable contraction for some years after the war. The reason was the return to more normal levels of operation after the end of the war boom. Since 1949 the industry has been expanding once again, chiefly in the Coimbatore area. Approximately forty new mills have been built in that region alone since 1950. As a result of this expansion

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[14] As distinguished from establishments engaged exclusively in repair work, such as railway and bus transport company workshops, found in six or seven large cities.

[15] i.e., employing more than 250 persons. See below, Appendix, p. 225, for the definition of small, medium and large-scale enterprises.

Table 4

AVERAGE DAILY EMPLOYMENT IN FACTORIES COMING UNDER THE FACTORIES ACT (1948) IN MADRAS STATE FOR SELECTED YEARS 1948-1955

Year	*Madras State (including Andhra Pradesh)* [a]	*Andhra Pradesh*
1948	323,950	..
1951	417,545	..
1952	407,451	..
1953	397,374	96,339
1954	437,517	108,840
1955	441,097	119,232

SOURCE: *Commerce Annual Review Number* (Bombay), December, 1956, p. A108 *a*.

[a] Andhra Pradesh came into existence in October 1953 when eleven districts were separated from Madras State. Figures for Andhra are included for purposes of comparison with pre-1953 data.

Table 5

AVERAGE DAILY EMPLOYMENT IN FACTORIES COMING UNDER THE FACTORIES ACT IN THE THREE MAJOR INDUSTRIES OF MADRAS STATE DURING 1945, 1949 AND 1955[a]

Industry	*Year*		
	1945	*1949*	*1955*
1. Textiles	104,850	89,884	106,662
2. Agricultural processing, food, beverages and tobacco	21,610	..	51,750
3. Engineering	28,582	34,161	46,813

SOURCE: Annual *Lists of Factories in Madras State* for respective years.

[a] Data refer to factories within the present limits of Madras State only, i.e. excluding Malabar and South Kanara Districts.

the population of the city has risen sharply, as persons from surrounding rural areas have come to the city in search of jobs. The building boom has contributed to the establishment and growth of many small engineering units, such as structural workshops, machinery repair shops and small manufacturers of textile machinery parts, as will be seen when the origins of the firms under study are discussed in the next chapter.

As the table also indicates, the engineering industry in Madras State has grown considerably since the end of the war. Employment in the industry has risen by sixty-nine per cent since 1945, and two-thirds of this rise has taken place since 1949.

The structure of the industry has also been changing. In 1939, on the eve of the Second World War, the great majority of engineering units in the state were engaged in repair and service activities, railway workshops and utilities alone accounting for seventy-nine per cent of all employment.[16] Since then, the manufacturing branch of the industry has steadily increased in importance. By 1955, railway workshops and utilities accounted for only forty per cent of employment in engineering.[17]

As it has grown, the industry has become more decentralized, except for the large-scale manufacturing sector, which has developed almost exclusively in the vicinity of Madras City. Of the 47 engineering units in the factory list for 1939, 29 were located in Madras City, 6 in Coimbatore and the remaining 12 were scattered throughout the other districts of the state.[18] Table 6 shows the process of decentralization which has been taking place.

The most significant aspect of this development has been the emergence of Coimbatore as a major centre of engineering industry in the state, second only to Madras City in importance. All but a few of the state's large-and medium-scale units, as mentioned above,[19] are found in these two centres. Centres of less importance are Madurai, Salem, Tiruchirapalli and Tanjore.

Small-scale units (i.e. employing less than fifty persons with power) still predominate in the industry. Of the 514 engineering factories in the state in 1955, only 121 employed fifty persons or more. Nearly half of the latter were non-manufacturing units such as railway and public utility workshops and bus and automobile repair shops.

Further expansion of industry is in prospect. When the present study was under way in 1957, plans were nearing completion for commencement of lignite mining at Neyvelli, and samples of Salem iron ore were being tested at the National Metallurgical Laboratory in Jamshedpur (Bihar). Tentative plans have been drawn up for the establishment in the public sector of a pig-iron industry based

[16] Data computed from the *List of Factories in Madras State for 1939.*

[17] Data computed from the *List of Factories in Madras State for 1955.*

[18] *List of Factories for 1939.* [19] *Ibid.*, p. 34.

Table 6

DISTRIBUTION OF ENGINEERING FACTORIES IN MADRAS STATE IN 1945, 1949 AND 1955, BY MAJOR INDUSTRY CATEGORIES

Industry	*Number of factories by districts*											
	1945				*1949*				*1955*			
	Madras[a]	*Coimbatore*	*Others*[b]	*Total*	*Madras*[a]	*Coimbatore*	*Others*[b]	*Total*	*Madras*[a]	*Coimbatore*	*Others*[b]	*Total*
1. Coach building, R.R., and motor workshops	20	10	36	66	49	27	101	177	58	34	116	208
2. General engineering, foundries, machinery and metal products manufacture	44	8	24	76	56	26	43	125	142	49	73	264
3. Electrical engineering	3	1	0	4	9	4	0	13	15	3	16	34
4. Others	12	0	2	14	27	6	14	47	5	3	0	8
TOTAL	79	19	62	160	141	63	158	362	220	89	205	514

SOURCE: *Lists of Factories in Madras State* for respective years.

[a] Madras City and Chingleput District.

[b] Excludes Malabar and South Kanara Districts.

on Salem iron ore.[20] *Production of pig-iron within the state would* aid greatly the expansion of the engineering industries, severely hampered at the time of the present study by the acute shortage of that raw material.[21]

The team of British experts has also recommended the establishment, in connection with the Neyvelli lignite project, of large-scale generating plants, an ammonium sulphate factory, and a plant for the conversion of lignite into briquettes for use in boilers and as household fuel.[22]

Government Economic Policy

Irrigation and Power Projects. The preceding section has traced the main developments in the private sector of the economy since the end of the War. During this period, and particularly after 1951, when India's First Five Year Plan was launched, the Government of Madras has been active in attempting to promote the economic development of the area. As throughout the country generally,[23] the Plan as carried out in Madras concentrated on the development of irrigation and power facilities and improvement of the agricultural economy. This fact is brought out in Table 7.

Irrigation projects undertaken in connection with the Plan included eleven major projects costing Rs. 368,900,000 and designed to benefit 524,000 acres, chiefly rice land, with an estimated gain in annual production of 118,000 tons of foodgrains and 14,700 tons of cotton.[24] The most important of these projects was the Lower Bhavani Project in Coimbatore District. The main canal of this project is 124 miles long, and will irrigate 207,000 acres of land, half cotton and half millets, in Coimbatore and Tiruchirapalli Districts. The work had almost been completed at the time of the study, and large areas had already been brought under irrigation.[25] In addition, many minor irrigation projects were under construction in various parts of the state. A filter-point tube-well scheme was also inaugurated in 1951, providing for the construction of wells in the rice fallows of the delta. The purpose was to provide farmers with water during the off-season of the summer months for the cultivation of paddy, cotton and other crops. Several thousand

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[20] The difficulty in the way of this project is the fact that Salem iron ore deposits, while extensive, are on the whole of very low grade. Furthermore, since coking coal is not found in Madras State it would not be feasible to produce iron by the conventional blast furnace method in view of the high cost of bringing coke in sufficient quantities from North India. A method known as the "low shaft method," however, has been developed in Germany, for producing iron from low-grade ores. This method does not require coke of metallurgical grade and can make use of low-grade coal or lignite. If the method can be successfully adapted to Indian conditions, a pig-iron industry using Salem iron ore and Neyvelli lignite can be established. *Press Note of the Government of Madras, The Mail* (Madras), June 19, 1957, p. 5.

[21] See below, Chapter IV, pp. 160–68.

[22] T. N. S. Raghavan, Development Commissioner, State of Madras, "Achievements Under the First Five Year Plan," *Madras Information*, p. 28. Agriculture in the state would benefit considerably from replacement of dung cakes by lignite as a household fuel, since the soil would no longer be robbed of its natural fertilizer.

[23] Cf. *The First Five Year Plan* (New Delhi: Government of India, Planning Commission, 1951). The Plan came to an end in 1956. For a review of the progress made under the Plan, see *Review of the First Five Year Plan* (New Delhi: Government of India, Planning Commission, 1957).

Table 7
ALLOCATION OF PUBLIC EXPENDITURE IN MADRAS STATE UNDER THE FIRST FIVE YEAR PLAN (1951–56)

Head of development	*Provision made in the Plan*		*Expenditure incurred to March 30, 1955*
	Amount (Rs. 000,000)	*Percentage*	(Rs. 000,000)
1. Irrigation and power projects	5,105	59·0	
2. Agriculture, animal husbandry, forests, fisheries, etc.	1,141	13·2	768
3. Highways	358	4·2	257
4. Cottage and other industry	172	1·9	133
5. Social services, including education, health, housing and amelioration of condition of backward classes	1,867	21·7	1,224
TOTAL	8,643	100·0	5,992

SOURCE: Adapted from *Madras Information*, p. 25. (Rs. 4·75=U.S. $1·00) wells were sunk since the inception of the scheme, 895 during 1954–55 alone.[26]

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[24] U. Ananda Rao (Chief Engineer, Irrigation, Government of Madras), "Irrigation Projects," *Madras Information*, pp. 41–5.

[25] *Ibid.*, p. 41.

The effect of these projects was to raise annual output of food crops in the state by an estimated 350,000 tons since 1954. Cotton production had also risen, due chiefly to the increased acreage made available through the Lower Bhavani Project of Coimbatore District. Production in 1955–56 was estimated at 357,000 bales compared with 290,000 bales in the previous year.[27] Incomes in rural areas have consequently risen.

Power projects received even more attention in the First Five Year Plan than irrigation projects. From the beginning of the Plan in 1951 to March 30, 1955, the installed generating power in the Madras State Grid was increased by approximately sixty-nine per cent, from 156,000 kilowatts to 263,200 kilowatts. Capital invested and in operation in generation and distribution of electric power increased from Rs. 184·4 million to Rs. 360·8 million, or by nearly one hundred per cent.[28] In 1955 Madras State ranked third among the states of the Indian Union in over-all power production, second in hydro-electric development, and first in rural electrification.

Extension of rural electrification received great emphasis under the Plan, and the number of villages receiving electricity almost doubled since 1951, as shown in the following table.

Table 8
NUMBER OF VILLAGES ELECTRIFIED IN MADRAS STATE AS OF MARCH 30, 1951-55

Year	*Number of villages*
1951	1,613
1952	1,820
1953	1,961
1954	2,089
1955	2,392
1956 [a]	2,900

SOURCE: Appadurai, "Power Projects . . .," p. 54.
[a] Anticipated.

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[26] *Administration Report of the Agricultural Department for the Year 1954–55* (Government of Madras, Agricultural Department, 1956), p. 186.

[27] Raghavan, "Achievements Under the First Five Year Plan," p. 26.

[28] V. P. Appadurai (Chief Engineer, Electricity, Madras State), "Power Projects and the Plan," *Madras Information*, p. 54.

The estimated 2,900 villages electrified in 1956 represent only 14·8 per cent of the total number of villages in the state, however.[29] It is estimated that eighteen per cent of the power generated was consumed in villages.[30]

The expansion of irrigation and power facilities and the rural electrification programme contributed to the growth of industry reviewed in the preceding section. Several of the most important power projects serve the Madras City and Coimbatore areas, and without the additional facilities, the growth of the textile and engineering industries in those areas would not have been possible on the scale which has taken place. In addition, increased power facilities in rural areas have led to a rise in peasants' demand for power-driven pumps for irrigation purposes, and in the demand of rural artisans and processing industries for small machines. This rise in demand, in turn, has created a market for producers of pumps, motors, and various types of processing machinery and small machine tools, and for the services of repair and odd-job shops to service them—precisely the type of establishment included in the present study.

The number of electrically-powered irrigation pumps in use in rural areas of the state rose from an estimated 14,626 in 1951 to 24,654 in 1955 or by 68 per cent.[31] It is also certain that the number of oil-engine pump-sets in use has risen substantially as irrigation facilities have spread, although statistics are not available.

The use of electrically-powered machinery has also risen in some rural industries such as oil-pressing, ground-nut decorticating and sugarcane crushing, as well as in the workshops of rural artisans. The data in Table 9 give some indication of developments in this respect.

Government Aid to Agriculturists and Small Industry. The market for such products of the engineering industry as oil-engines, pumps, electric motors and various types of machinery and machine tools has been strengthened further by various forms of Government assistance to cultivators and small-scale industrialists.

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[29] According to the Census of 1951 there are 19,491 villages in the state. *Madras in Maps* . . ., p. 8. [30] *Ibid.*, p. 43.

[31] Appadurai, "Power Projects. . .," p. 55.

Table 9

RISE IN THE USE OF ELECTRICITY BY RURAL AND SMALL-SCALE INDUSTRY IN MADRAS STATE, 1951–1955[a]

Industry	*No. of units receiving power*		*Connected loads (kWs)*	
	1951	*1955*	*1951*	*1955*
Rural industries	1,556	2,455	19,810	27,361
Other small-scale industries	3,859	6,197	30,982	50,241
TOTAL	5,414	8,652	50,792	77,602

SOURCE: Appadurai, *op. cit.*, p. 55.

[a] Data refer only to units served directly by the State Electricity Department. Power is also distributed by private distributors under licence of the State Government.

The most important forms of aid to agriculturists are the following:

(*a*) Direct loans for the purchase of implements, seed and fertilizer, and for marketing produce. The amount of credit extended in 1956–57 alone totalled 87·6 million rupees.[32]

(*b*) Two programmes to provide ryots with oil-engine or electrically-powered pump-sets. Under one of these the Agricultural Department maintains some four hundred pump-sets which are hired out to farmers at low rates. Under the second scheme, the Government purchases pump-sets and re-sells them to farmers on an easy installment basis. The total number supplied to ryots under the second programme, from its inception in 1949 to June 30, 1956 was 1,716 oil-engine and 750 electrically-powered pump-sets.[33] Expenditure by the Government of Madras for the purchase and distribution of pump-sets in 1955–56 amounted to Rs. 5,96,932.[34]

The State of Madras also assists cottage and small-scale industries, mainly by training village workers, supplying equipment and materials and helping them to market output. The assistance has affected chiefly the handloom weaving industry, the cottage match industry, the palmyra fibre and leaf products industry and the leather goods industry.

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[32] *Administration Report of the Agricultural Department, 1955–56*, p. 221. A Tractor Hire-Purchase Scheme has also been in effect since 1951, but has not been large enough to be important. Approximately fifty-nine tractors had been supplied to ryots from the inauguration of the scheme up to 1956. *Ibid.*, p. 218. [33] *Ibid.* [34] *Ibid.*, p. 222.

More important in creating a market for manufacturers of engineering goods has been the aid rendered to non-cottage small industries in collaboration with the Government of India's Small Industries Service Institute (located in Madras City), and the National Small Industries Corporation.[35] Programmes are of four types: (*i*) technical service, research and training schemes; (*ii*) establishment of pilot production units, with a view to converting them later into industrial co-operatives or private enterprises; (*iii*) establishment of industrial estates; and (*iv*) miscellaneous forms of aid including provision of machinery on a hire-purchase basis, and assistance in marketing. All these programmes are designed to help small industrial units as defined by the Government. At the time of this study the Government definition of "small-scale" covered units employing less than fifty persons if they use power, and less than one hundred if they do not use power, and having an investment of less than Rs. 5,00,000 in capital.

In Madras State, projects to aid small industry costing Rs. 1,38,86,328 and Rs. 69,73,801 were sanctioned in 1955–56 and 1956–57 respectively.[36] Among the more important were a foot-wear service institute near Madras, and a service centre for the lock industry in Dindigul; two model carpentry workshops; a training centre for producing scientific glassware; and a service centre for manufacturing metal products. An Industrial Estate, inaugurated in January, 1958, has been erected on the outskirts of Madras City. The Estate consists of ninety small factory buildings, complete with water, power and other facilities, which are being made available to small industrialists on a low rental or easy installment hire-purchase basis. A number of Service Centres have been established on an adjoining plot to assist the occupants of the Estate. These centres include a tool-room shop intended to supply dies, jigs and other special tools to the industrialists; a model foundry which will supply high quality castings; and several units catering to the needs of industries manufacturing hand tools, surgical instruments, laboratory equipment, electrical goods and a few other products. The services of an Analytical Laboratory for testing raw materials and finished products, and of a Central Polytechnic School will also be available. The total cost of the project was approximately Rs. 16·5 million, and was partly paid by the Government of India.[37]

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[35] Both these organizations were set up on recommendation of the Ford Foundation's International Planning Team which studied the problems of India's small industries in 1953–54. *Report on Small Industries in India* by the International Planning Team, The Ford Foundation (New Delhi: Government of India, Ministry of Commerce and Industry, 1955). The Small Industries Service Institutes of which there are now fifteen plus a number of branches and Industrial Extension Centres, undertake research on the problems of small industries and provide information and courses on technology and business management. The National Small Industries Corporation aids small industries in marketing their products, helps them secure Government contracts, provides machinery on hire-purchase and has handled the construction of several of the Industrial Estates which are being set up in various parts of India. Cf. *Administration Report of the National Small Industries Corporation, 1956–57* (New Delhi: The Secretary, The National Small Industries Corporation Private Ltd., 1957), Chapter I.

[36] Information provided by the Deputy Director of Industries for Madras State.

Various other programmes assist small-scale industries. Loans are provided under the Madras State Aid to Industries Act, which empowers the State Director of Industries to grant loans up to Rs. 50,000. The rate of interest normally charged is 6·25 per cent. Loans must be secured by land, buildings, machinery or gold up to fifty per cent of the value of the security. Subsidies are paid to industrial co-operatives and cottage industries.[38] The Madras Industrial Investment Corporation is empowered to grant loans to larger industrial units, up to a maximum amount of Rs. 10,00,000. Terms are similar to those provided under the State Aid to Industries Act. One of the most effective measures of financial assistance to small-scale industries is the scheme for hire-purchase of machinery. Under this programme, administered by the Government of India's National Small Industries Corporation, machines are purchased by the Corporation and supplied to applicants at their factories or workshops. Machines are paid for by industrialists over a period of from three to eight years, depending on the life of the machine. A down-payment of approximately one-fifth of the price is required, special concessions being made for industrial co-operatives and very small industrialists.[39]

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[37] R. Venkataraman (Minister for Industries and Labour, Government of Madras), Welcome Address at the Inauguration of the Industrial Estate, Analytical Laboratory and Central Polytechnic at Guindy, Madras, January 7, 1958.

[38] *Madras Information*, p. 111.

Protection of Domestic Industry. The growth of industry in Madras State, as throughout India generally, has been assisted by the Government of India's policy of protecting domestic industry by tariffs and import licence requirements. Most of the industries in which the fifty-two firms under study are operating, and many others, are protected.

Thus, the power-driven pump industry has been protected since 1949. Imports of centrifugal pumps with a horizontal spindle and delivery outlet of six inches in diameter or less, are restricted to twenty per cent of one half of established importers' best year's imports.[40] Protection of the electric motor industry, first granted in 1948, was recently renewed to 31 December 1958. A protective duty of fifteen per cent *ad valorem* is levied on imports of squirrel-cage induction motors of twenty to one hundred horse-power inclusive, and on shipping motors up to one hundred horse-power, exclusive of special designated types not produced in India. A protective duty of twenty per cent *ad valorem* is levied on component parts of motors subject to duty.[41] The bicycle industry has been protected since 1946. Until 1954 the rate of duty was 73·5 per cent *ad valorem* on cycles of non-British manufacture, and 63·5 per cent on cycles of British manufacture. In 1954 the rates were lowered to forty-seven per cent *ad valorem* or sixty rupees (whichever is higher) on British cycles, an additional ten per cent being charged on imports of non-British cycles.[42] Indian manufacturers of textile machinery have been protected since shortly after the War by import control and a ten per cent *ad valorem* duty on imported ring frames, spinning rings and spindles. In 1951 an additional revenue surcharge of five per cent was imposed. Fluted and tin rollers, and looms of all kinds and parts thereof have subsequently been brought under the protective duty, rendering protection complete.[43]

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[39] *Administration Report of the National Small Industries Corporation, 1956–57*, pp. 73–4.

[40] *Programmes of Industrial Development 1956–61* (New Delhi: Government of India, Planning Commission, 1956), p. 91. Imports of pumps with a larger delivery outlet, and vertical spindle pumps, not manufactured in India on a large scale, are permitted up to 100 per cent and 75 per cent respectively of one half of established importers' best year's imports. Special types not manufactured in India are allowed freely under Open General Licence.

[41] *Ibid.*, p. 136. Stringent import control is also exercised, imports of some types produced in India being banned altogether. *Ibid.*, p. 134.

[42] *Ibid.*, p. 108.

Stringent control is exercised over the import of radios. Established importers are permitted to bring into India from soft currency areas only seven per cent of one half of their best year's imports of radio sets of nine tubes and above, car radios, and other special types not manufactured in India.[44] Fountain pen and button manufacturers have also been granted protection, as have many others.[45]

Many of the sheltered industries need protection. In 1951 and 1952 imports of a number of types of engineering goods were temporarily removed from the restricted list and permitted under open general licence. The effect on several Indian engineering industries was almost disastrous. Imports of power-driven pumps, for example, rose from Rs. 5·72 million in 1950–51 to Rs. 9·56 in 1951–52. During the latter year, stocks of domestic pump producers accumulated, necessitating a cut-back in production from 46,000 units in 1951–52 to 25,000 units the following year.[46] Heavy imports of oil-engines in 1951–52 resulted in a decline in domestic production from 7,263 units in 1951–52 to 2,909 in 1952–53. The radio-manufacturing and several other industries were similarly affected. Some units failed, and few new engineering factories were established during 1952 and 1953.[47]

Government Attitude Toward Private Industry. Another aspect of Central Government policy which has an important bearing on industrial development must be mentioned, namely the general policy of the Government of India toward growth of private enterprise. In December 1954, the Indian Parliament accepted a "socialist pattern of society" as the objective of social and economic policy in India. As interpreted by the Government's Industrial Policy Resolution of 30 April 1956,[48] the adoption of a socialist pattern of society as the national objective requires,

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[43] *Ibid.*, pp. 38–9. [44] *Ibid.*, p. 169.

[45] For details of other industries, cf. *ibid.*, *passim*, under various industry headings, and the semi-annual publication known as the *Red Book* (New Delhi: Government of India, Ministry of Commerce and Consumer Industries).

[46] *Programmes of Industrial Development . . .*, p. 91.

[47] D. S. Mulla, "India's Machine Tool Industry," *Capital* (Calcutta), Special Supplement, "Engineering Industries," June 24, 1954, p. 33.

[48] *Programmes of Industrial Development . . .*, p. 435.

> that all industries of basic and strategic importance, or in the nature of public utility services, should be in the public sector. Other industries which are essential and require investment on a scale which only the State, in present circumstances could provide, have also to be in the public sector. The State has therefore to assume direct responsibility for the future development of industries over a wider area.[49]

It is recognized however that there are "limiting factors which make it necessary at this stage for the State to define the field in which it will undertake sole responsibility for further development, and to make a selection of industries in which it will play a dominant role."[50]

Three categories of industries have, accordingly, been set up. In the first category are industries the future development of which will be the exclusive responsibility of the State. All new units in these industries, save where their establishment in the private sector has already been approved, may be set up only by the State. Expansion of existing privately owned units will be permitted, and the door is left open for the State to secure the cooperation of private enterprise in establishing new units when the national interest so requires.[51] Industries included in the first category are listed in Schedule A of the Resolution, and are as follows:

1. Arms and ammunition and allied items of defence equipment.
2. Atomic energy.
3. Iron and steel.
4. Heavy castings and forgings of iron and steel.
5. Heavy plant and machinery required for iron and steel production, for mining, for machine tool manufacture and for such other basic industries as may be specified by the Central Government.
6. Heavy electrical plant including large hydraulic and steam turbines.
7. Coal and lignite.
8. Mineral oils.

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[49] *Ibid.* [50] *Ibid.*

[51] *Ibid.*, pp. 435–6. Privately owned units may also be permitted to produce an item falling within Schedules A and B to meet their own requirements, or as by-products. *Ibid.*, p. 436.

9. Mining of iron ore, manganese ore, chrome ore, gypsum, sulphur, gold and diamonds.
10. Mining and processing of copper, lead, zinc, tin, molybdenum and wolfram.
11. Minerals specified in the Schedule to the Atomic Energy (Control of Production and Use) Order, 1953.
12. Aircraft.
13. Air transport.
14. Railway transport.
15. Shipbuilding.
16. Telephones and telephone cables, telegraph and wireless apparatus (excluding radio receiving sets).
17. Generation and distribution of electricity.[52]

The second category includes industries "which will be progressively State-owned and in which the State will therefore generally take the initiative in establishing new undertakings, but in which private enterprise will also be expected to supplement the effort of the State."[53] Industries in the second category are listed in Schedule B of the Resolution, and are the following:

1. All other minerals except "minor minerals" as defined in Section 3 of the Minerals Concession Rules, 1949.
2. Aluminium and other non-ferrous metals not included in Schedule "A."
3. Machine tools.
4. Ferro alloys and tool steels.
5. Basic and intermediate products required by chemical industries such as the manufacture of drugs, dyestuffs and plastics.
6. Antibiotics and other essential drugs.
7. Fertilizers.
8. Synthetic rubber.
9. Carbonization of coal.
10. Chemical pulp.
11. Road transport.
12. Sea transport.[54]

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[52] *Ibid.*, p. 438.
[53] *Ibid.*, p. 435.
[54] *Ibid.*, p. 439.

The third category includes all remaining industries, the future development of which "will, in general, be left to the initiative and enterprise of the private sector."[55] The Resolution provides, however, that "it will be open to the State to start any industry not included in Schedule A and Schedule B when the needs of planning so require or there are other important reasons for it."[56]

The Industrial Policy Resolution of 1956 is a revised and expanded version of the Resolution adopted by the Government on April 6, 1948. The earlier Resolution had vested in the Government exclusive responsibility for the establishment of new enterprises in six major industries now included in Schedule A.[57] Subsequent to the Resolution of 1948, the Industries (Development and Regulation) Act of 1951 was enacted, and came into force in May, 1952. This Act is still in force, and brings under Government supervision all important industries (except plantations), both public and privately owned. It provides for the setting up of development councils to promote efficiency in production, and cooperation among producers and consumers in the following industries: aircraft, arms and ammunition, coal, iron and steel, mathematical and scientific instruments, petroleum products, ships, sugar, telephones, telegraph and wireless equipment, jute, cotton and wool textiles, automobiles, cement, heavy machinery, electric lamps, fans and motors, heavy chemicals, locomotives, machine tools, electrical machinery, non-ferrous metals, paper, pharmaceuticals and drugs, power and industrial alcohol, rubber goods, leather and leather goods, vegetable oils, agricultural implements, batteries, bicycles, hurricane lanterns, internal combustion engines, pumps, radio receivers, sewing and knitting machines, small tools, glass and ceramics. Silk, artificial silk and staple fibre, dyestuffs, soap and other toilet requisites, ferro-manganese, plywood and glue and gelatine were later brought within the scope of the Act.

In addition, the Act requires the owners of existing establishments manufacturing the products just listed to register with the Government; prohibits the establishment of new undertakings, or the substantial expansion of existing ones, except under a licence issued by the Central Government on such conditions as the Government may deem fit to impose; and empowers the Central Government to make investigations, issue directions and assume control, "if there is a falling off from desirable standards, or where there is mismanagement detrimental to the interest of consumers."[58] A Central Advisory Council for industry was set up in May, 1952, and development councils for ten major industries have also been established.[59]

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[55] *Ibid.*, p. 435. [56] *Ibid.*, p. 436. [57] *Ibid.*, p. 434.

All the firms included in the present study are in industries covered by these regulations. In practice, however, the only important measure which affects them is the necessity of obtaining a licence to establish an enterprise, to expand, or to introduce a new product. No serious attempt has been made to enforce other provisions of the Act, at least not on the level of industry where these firms are found. The regulations are there, however, and can be enforced more rigidly whenever the Government wishes to do so.

It is clear that private industry in India operates within a framework of supervision and regulation by Government. There is much controversy regarding the extent to which potential investors in private enterprise have been discouraged, if at all, by Government policy.[60] This discussion is outside the scope of the present study, but it can be said that the entrepreneurs under study have not been deterred by existing policy. Many of them complained about the necessity of securing licences, of long delays in the processing of applications, of numerous reports to be filled out and time lost in dealing with officials. But they are not worried lest they be nationalized, or that the Government may assume control or operation of their enterprises. They consider themselves much too small for that. And, as many pointed out, the Indian Government has enough financial problems without buying up "used machinery."

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[58] *Recent Development in Certain Aspects of Indian Economy, III* (New Delhi: International Labour Office, India Branch, 1956), pp. 22–3. [59] *Ibid.*, p. 23.

[60] The view-point of industry spokesmen is that investors' confidence has been seriously weakened, and that Government monopoly is preventing private enterprise from entering basic industries for which capital would be forthcoming. Typical expressions of this view-point are the following articles: A. D. Shroff, "Free Enterprise and Democracy," *Commerce Annual* Review Number (Bombay), December, 1956, p. A 13; and M. A. Sreenivasan, "The Juggernaut of Avadi," *ibid.*, p. A 16. For a defence of Government policy see V. K. R. V. Rao, "Private Enterprise and the Second Five Year Plan," *ibid.*, p. A 20. If investors' confidence has been seriously damaged it has not been evident during the first year of the Second Plan. Imports of capital goods by the private sector during the first six months of 1956–57 almost equalled the amount private industry was expected to import during the entire five years. W. Malenbaum, "The Economic Crisis in India," *Economic Weekly* (Bombay, Special Number, July 6, 1957, p. 840).

As a consequence, they are going ahead with the development of their enterprises without any apparent fear of the future.

Such are the main features of the economic environment in which the entrepreneurs under study are carrying on their activities. The economy of which they are a part exhibits all the characteristics associated with the term "under-developed area." But the area is not a stagnant one. Some development is taking place, and industry has been growing. Government irrigation and power projects, accompanied by rising incomes in rural areas and Government assistance to cultivators and small industrialists, have widened the market for pumps, oil engines and electric motors. The textile industry has been expanding, raising demand for textile machinery and parts, and giving work to many steel-fabricating and structural workshops as new mills have risen from the paddy and cotton fields. Several large engineering factories have moved into the state, and older ones have been expanding, creating some opportunities for ancillary production by small units—and some difficulties for small competitors. Factory employment has been rising, and the state's major cities have been growing. Demand for manufactured consumer goods has been increasing. In a word, there is much evidence that Madras State may be just at the "take-off point" where cumulative development becomes possible, if entrepreneurs come forward in sufficient numbers.

CHAPTER III

ENTREPRENEURS' BACKGROUND AND ORIGINS OF THE FIRMS STUDIED

THE PREVIOUS chapter has outlined the main features of the economic environment in which the entrepreneurs under study are operating. We now turn to the entrepreneurs themselves. From what economic and social background have they come, and by what steps have they made the transition to industry from whatever they were previously doing? What business and technical training have they brought with them into the industrial field? Is it true, as often supposed, that most of them were formerly merchants, and, if not, where did they get the capital to launch an industrial enterprise? On how large a scale have they founded their enterprises, and what problems have they encountered in getting established in the market ? These are the questions to be dealt with in the present chapter.

In organizing material of the kind which follows, it is always difficult to decide how detailed the information presented should be. Unless details of individual cases are given, it is not possible to present a vivid picture of the forces which influence the emergence of entrepreneurship in under-developed countries. At the same time, material must be reduced to manageable proportions. An attempt has been made in the following pages, accordingly, to present significant and interesting details, while keeping case studies as brief as possible.

Before going into detail, it can be said that the entrepreneurs encountered in the course of the investigation form a very varied group in terms of both economic and social background. Some were originally poor rural artisans or factory workmen. Others have come from well-to-do merchant and land-owning families. Some have had no previous experience whatever with industrial enterprise, but have a background of such varied activities as diamond trading, teaching, or operation of bus lines. Others are graduates of Indian or foreign engineering colleges, and are highly qualified technicians. On the basis of immediate economic and technical background the entrepreneurs fall into the following main groups.

Table 10
DISTRIBUTION OF ENTREPRENEURS ACCORDING TO IMMEDIATE ECONOMIC AND TECHNICAL BACKGROUND

Entrepreneurial background	*Frequency*
Rural artisans	5
Domestic merchants	10
Factory workmen	6
Graduate engineers	12
Importers	5
Manufacturers	4
Cultivators	4
Miscellaneous	6

NOTE: Frequency refers to number of firms established by entrepreneurs in each category.

In terms of social Community (using the term in its Indian sense[1]) the picture is also quite varied. Ten Communities are represented. The distribution of entrepreneurs among these Communities is as follows:

Table 11
DISTRIBUTION OF ENTREPRENEURS ACCORDING TO SOCIAL COMMUNITY

Community	*Frequency*[a]
Naidu	21
Brahman	12[b]
Chettiar	8
Naicker	3
Punjabi	2[c]
Christian	2[d]
Gujerati	1
Gounder	1
Asari	1
Muslim	1
TOTAL	52

[a] Refers to number of firms established by entrepreneurs in each category.
[b] Includes one partnership between two Brahmans and a Christian.
[c] Established by the same individual.
[d] One of these entrepreneurs is a European permanently settled in India.

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[1] For a discussion of the term and its relation to business life in India, cf. D. R. Gadgil *et al.*, *Some Notes on the Rise of Business Communities in India* (New York: Institute of Pacific Relations, 1951), p. v (Mimeographed). As

A brief descriptive note on each of these Communities is presented in the footnote below.[2]

CASE STUDIES

Group 1. Rural Artisans

THE first group of entrepreneurs to be discussed are those who began their careers in industry as small rural artisans. Five firms were found to have been established by such men. They are given in Table 12 on next page.

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there explained, the term "Community" denotes the group within which habitual inter-dining and inter-marriage take place. In Hindu society the Community is the primary social group. For a brief outline of the history of the Communities most important in the Indian business world, namely, the Parsees, the Gujeratis and the Marwaris, cf. *ibid.*, p. vi. Present-day Communities are the outcome of sub-division among the four main Castes of traditional Hinduism, namely, the Brahmans (priests), Kshatriyas (warriors), Vaisyas (traders) and Sudras (artisans). Cf. Edgar Thurston, *Castes and Tribes of Southern India* (Madras, 1909), I, p. 267.

[2] The *Naidus* were originally a Telugu-speaking warrior people from an area north of Madras, now part of Andhra State. They migrated south during the wars of the sixteenth and seventeenth centuries, to settle down finally as cultivators in the area around Coimbatore. From general cultivation they turned to cotton-growing when the British began establishing textile mills in the area, and are now in control of most of the mills of the area. The *Brahmans* are the highest or sacerdotal class among the Hindus, whose chief duty traditionally was the study and teaching of the Vedas and the performance of religious ceremonies. In modern times they have been prominent in education, the professions and government service. The *Chettiars* are predominantly a trading Community (although some groups of artisans are found among them). They are a southern counterpart of the Marwaris, and have dominated trade in South India and Burma. The *Naickers* (or Nayagars) are an artisan caste in the eastern part of Madras State whose traditional occupation is smithy and carpentry work, from which they moved into foundry work. *Punjabis* are inhabitants of the Punjab in North India. *Gujeratis* are inhabitants of Gujerat, an area north of Bombay. They have long been prominent in trading and other business in Bombay and Ahmedabad. The *Gounders* are a cultivating caste in the vicinity of Coimbatore. The *Asaris* are an artisan caste in the western part of Madras State and are very similar to the *Naickers*. The *Muslims* are Mohammedans and are prominent in the leather and tanning industry of the state. For detailed information concerning the history and social customs of these and other Communities in the area, cf. Thurston (6 vols.) *passim*.

Table 12

FIRMS ESTABLISHED BY RURAL ARTISANS BY YEAR OF ESTABLISHMENT, EMPLOYMENT AND MAIN PRODUCT OR ACTIVITY

Ident. no. of firm	*Year estab.*	*Employment*[a]	*Main product or activity*
1	1884	72	Agricultural processing machinery
2	1916	52	Agricultural processing machinery
3	1921	55	Structurals
6	1924	218	Power-driven pumps
33	1944 [b]	124	Structurals; steel windows

[a] Average daily employment in addition to proprietors during 1956.

[b] The exact date of the establishment of this firm in its original form as a rural blacksmith shop was not ascertainable. It was inherited in that form by the present proprietor in the year indicated.

The three oldest of these firms were established by Naickers, Firm 6 by a Naidu, and Firm 33 by an Asari. It will be noted that four of the five firms were established before the Second World War.[3] Rural artisans constitute the largest single group among the prewar entrepreneurs.

A few examples will serve to illustrate the typical pattern of origin and development of firms established by artisan-entrepreneurs. Firm 1, the oldest in the sample, was established in 1884 by the grandfather of the present proprietor, a smith from Pondicherry who left home as a young man to come to Madras. He eventually became a teacher, but this profession lost its appeal after a few years and he returned to the family trade, first as an employee in another workshop in the city. By 1884 he had saved enough to set up a small workshop of his own on the edge of the town. This shop was, for many years, little more than a tinker's odd-job and repair shop, like the many which can be seen along Walltax Road in Madras at present. It was the son of the founder (father of the present owner) who "put in the machinery" after he had taken over the running of the business. This was around the time of the First World War. At that time the foundry section was added, with a small cupola and moulding section, thus setting the stage for the workshop's future development. From this time it began to specialize in the manufacture of spare parts for various types of agricultural machinery such as rice-hulling machines and sugar-crushers, and eventually got into the production of entire machines, still its main product.

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[3] It would not be correct, of course, to conclude that rural artisans are a vanishing group of entrepreneurs in the industries studied. Such firms as those in Group 1 begin on a small scale and are slow in growing to medium size. Many may have been established in recent years which had not grown sufficiently to be included in the present study.

Firms 2 and 3 have had a similar pattern of development. In addition, they illustrate the important role which the Hindu joint family has often played in the establishment of the older enterprises in the present category. They provide an interesting example of how the joint family system can promote accumulation of capital and the multiplication of industrial enterprises. Firm 2 was established in its present form and location in 1916, by an artisan of the Naicker caste from a small sea-coast village south of Madras City. This man's family had for many years operated some salt-pans in the village, and in time a small workshop had been established in connection with the salt works for repair of pumps and other equipment. Gradually this workshop began taking on odd jobs and repair work for neighbours, and in 1916 the family decided to establish it as a separate unit. A site in the vicinity of the city was chosen, a small foundry installed, and subsequent development is very similar to that of Firm 1. The enterprise still specializes in agricultural machinery and spare parts. In 1921, with profits earned by Firm 2, the same family established a second unit not far away. This enterprise is Firm 3. Established as a manufacturer and repairer of agricultural processing machines like the parent enterprise, Firm 3 was placed under the management of the brother of the founder of Firm 2. A few years later a third unit was established near by and placed under the management of the same brother.[4] The three enterprises were carried on as a joint family business until 1947. In 1945 the founder of Firm 2 died, the death of his brother occurring two years later. At that point the sons wished a division of the property, and the three firms are now separately owned.[5] Firms 2 and 3 have developed in very different directions, as will be seen when the question of entrepreneurial mobility is taken up in a later chapter.[6]

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[4] This workshop is still in existence, but much smaller than the other two, hence not included formally in the present study. A fourth foundry, also small, was established by a member of the same family, and is also still in existence. It is clear that the family in question was a very enterprising one.

The origin of Firm 6 differs in no important respect from that of the firms just treated, although it is located on the other side of the state, near Coimbatore, and was founded by a Naidu. It began as a small workshop, first for the repair, then for the manufacture of ploughs and other farm equipment. In 1924 a foundry section was installed, the expansion being financed out of previous earnings and borrowings from friends and relatives. At this time cotton cultivation was being expanded in the area, due to the growing number of textile mills, and pumps for irrigation purposes were coming into increasing use. After the installation of his foundry, the founder of Firm 6 gradually came to specialize on the manufacture of spare parts, and, within a few years, of entire pumps. He enjoys the reputation in the area of being the first pump manufacturer in South India, and according to the best information the writer was able to obtain is the second in the whole of India, the oldest Indian established enterprise having come into existence in Bombay State in 1920. According to several persons who knew this man, he and his son used to tour the country-side together in the twenties and early thirties, demonstrating to peasants the benefits of irrigation pumps over the traditional bullock-lift systems. Frequently, according to these sources, he installed a pump without obligation on the part of the peasant, allowing him to pay only after being convinced of its value to him.

Firm 33 began life at some indeterminate time in the past as a small blacksmith and repair shop near Coimbatore. The blacksmith trade was the traditional occupation of the Asari who conducted it. This man died in 1944 leaving the shop to his son, the present proprietor. For five years the business was carried on in its old form, and then in 1949 was reorganized as a small structural workshop. The change was motivated by the wave of expansion taking place in the textile industry of the area, and was financed by taking in two brothers (Naidus) as financial partners, sons of a cultivator family in the neighbourhood. One of them had opened his own small workshop two years before, which he sold when he entered

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[5] The writer was told by many persons that such division of property, upon the death of the head of the family, is a growing tendency in present-day India.

[6] Cf. below, Chapter VI.

Firm 33. The two brothers provided the bulk of the Rs. 20,000 required for reorganization of the business. Operations in the structural field were begun on a small scale with about twenty employees. At first only simple structural shapes such as doors and windows were attempted, but the firm now undertakes steel work for entire buildings. In 1953, serious disagreement developed among the partners, occasioned by suspicion concerning the handling of the firm's business while one of the partners was on sick leave. The outcome was the withdrawal of the two financial partners, leaving the original proprietor as sole owner once again. Judging from what the writer was told by many entrepreneurs, such break-up of partnerships is a common phenomenon on the level of industry with which we are dealing. One reason is that partnerships are often formed between a "working partner" who knows the technical side of operations, and a "financial partner" who supplies the capital. The latter usually has the greater business experience and handles the financial side of the business. The arrangement is usually satisfactory while the firm is very small, but when it grows larger the working partner frequently begins to feel handicapped by his lack of financial knowledge, and suspicions easily develop. Another source of potential conflict is the fact that the working partner is usually interested in expanding the business and in developing it technologically, while the financial partner is more interested in quick returns on his money. Firms 17 and 36 have experienced this difficulty. The outcome is often the dissolution of the partnership. It is commonly said[7] that the financial partner, with his greater astuteness and wider experience in business matters, usually ends up in control of the enterprise. If that is true, the present instance is an exception, since it was the two financial partners who sold their shares to the artisan. They, in turn, took the money thus realized and established Firm 49, also a structural workshop. Even though partnerships may be short-lived temporary arrangements, they have a distinct role in the development of small enterprises. Through such a partnership, for example, Firm 33 was enabled to reorganize to take advantage of an expanding market and thus get "over the hump" in its progress from the small to the medium-size category. The profits thus realized, in turn, have led to the founding of Firm 49, now also a medium-size firm. If the partners had attempted to develop their original two small shops separately, both would probably be much smaller today than these two structural-engineering enterprises. Firms 17 and 47 have developed in the same way.

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[7] Cf. McCrory, pp. 26–8.

Enough has been said to indicate the ways in which rural artisan-entrepreneurs find their way into engineering-manufacturing industry, and to make clear the typical pattern according to which their firms develop. The enterprise comes into existence as a small smithy or odd-job shop, ancillary to agriculture or rural industry. The turning point in its history comes with the installation of a foundry section. The foundry is the birth-place of all modern machinery and most other metal products as well. Once equipped with cupola and moulding section, the former repair shop can now develop into a full-fledged manufacturing enterprise. The typical development, once manufacturing proper has begun, is through manufacture of spare parts to manufacture of entire machines. Four of the five firms in the present group have retained their character as units ancillary to agriculture or agricultural processing industry. Such activity has been declining steadily in importance, however, for Firm 3. Firms of the type under discussion begin on a very small scale, and take many years to grow to medium size. They are family controlled, at least during the first years of their life, and almost always family financed, with the help of small borrowings from friends and relatives. Only one, Firm 33, has relied extensively on outside capital for its development.

Group 2. Domestic Merchants

The next type of entrepreneur to be considered is the merchant[8] who has branched out into manufacturing. This group is conveniently treated in second place since the merchant-industrialist is, after the rural artisan, the most frequently encountered entrepreneur among the older firms. Ten of the firms under study were established by men who were or still are merchants.

Four of the firms have been established by Chettiars (Firms 5, 20, 21 and 34); two by Brahmans (Firms 4 and 8); one by a Gujerati (Firm 28); one by a Muslim (Firm 42); and two by a Punjabi (Firms 13 and 14), both by the same individual.

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[8] Only merchants engaged in domestic trade are treated in the present section. Importers are treated as a special category (Group 5), for reasons explained below.

Table 13

FIRMS ESTABLISHED BY DOMESTIC MERCHANTS BY YEAR OF ESTABLISHMENT, EMPLOYMENT AND MAIN PRODUCT OR ACTIVITY

Ident. no. of firm	*Year estab.*	*Employment* [a]	*Main product or activity*
4	1922	144	Structurals; machinery spare parts
5	1923	67	Agricultural processing machinery
8	1934	122	Enamel-ware utensils
13	1940[b]	68	Miscellaneous types of machinery
14	1941	53	Steel rolling mill
20	1945	51	Agricultural processing machinery
21	1946	54	Brass foundry and rolling mill
28	1947	100	Textile machinery; electric motors
34	1949	103	Brass utensils
42	1952	51	Automobile parts

[a] Average daily employment in addition to proprietors during 1956.

[b] Not established in 1940 but acquired by the present proprietor in that year through liquidation proceedings.

What leads the merchant to venture into the new and unfamiliar field of manufacturing, and why does he choose the particular industry he enters? The profit motive supplies the answer to the first question. As for the second, a discernible relationship usually exists between the merchant's trading activities and his new industrial venture, the latter being a more or less natural outgrowth of the former. Of the ten firms in the present category, only two (Nos. 5 and 20) exhibit no such logical nexus.

Thus, the entrepreneur who organized Firm 4 (presently a structural workshop and manufacturer of various kinds of machinery parts) began his business career as a dealer in rice-milling machinery parts. The traditional business of this man's family was rice-milling and moneylending in a rural area north of Madras, now part of Andhra State. Upon graduation from college in 1902, he entered the teaching profession for a time, but soon found that "it did not suit his talents," and withdrew from teaching to enter the family business. At that time most of the rice-milling machines and spare parts used in India were being imported from England, and he conceived the idea of cutting in on this business. The imported machines were being sold in India for approximately Rs. 1,200, and after investigation the proprietor of Firm 4 found that, except for the key cutting parts, they could be manufactured in Indian foundries for a little more than half the price of imported machines. He began having rice-hullers made by local foundries who copied British models, equipped them with imported cutters, which he stock-piled in order to insure a steady supply. Thus he was able to under-sell the imported machines and still make a substantial profit. The proprietor founded a trading firm in 1907 to handle the marketing of his rice-hullers, and by 1914 branches had been opened in two cities in Madras State. In 1922 he decided to start his own foundry, in order not to be dependent on the foundries with which he had previously been dealing, and presumably to reap the profits of manufacture for himself. In this foundry (now Firm 4) he began to manufacture all parts of the rice-hulling machines, including cutting discs, since the importing firms were beginning to refuse to sell to him because of the competition he was giving them. This foundry began on a small scale with some twenty workers and an investment of approximately Rs. 45,000, the initial capital coming from the profits of the trading business. The firm has diversified its activities considerably, and has grown much larger since its establishment, as will be seen in Chapter VI. One of its main activities is now fabrication of structural shapes, as well as manufacture of spare parts for many kinds of machinery. The diversification was begun in the late thirties, when the firm was converted into a Private Limited Company and expanded. In 1935, with the profits made from his foundry and trading business, this gentleman established an oil mill, and in 1948 a steel casting plant (located in his native State of Andhra) equipped with one of the first electric furnaces in South India.[9]

[9] He considers this plant an "experimental model" for gaining experience in the manufacture of high-grade steel machinery parts, and plans to expand operations when sufficient experience has been acquired. His great handicap at the present time is lack of a qualified technician to help him run the steel-casting plant. He has been trying to secure the services of a foreign technician, but thus far without success. Alongside the steel casting plant a site has been acquired for the development of a number of small-scale ancillary industries,

The founder of Firm 8 is also a native of Andhra State. The traditional family business was trading in ground-nuts and other agricultural commodities. This merchandising was conducted on a commission basis, the family advancing loans to cultivators, then taking the crop for disposal on commission. The proprietor's first personal business venture came in the early 1920's. Fired with enthusiasm for the *Swadeshi* movement (calling for boycott of foreign goods and adoption of the spinning wheel as a symbol of economic independence) which he had personally heard preached by Mahatma Gandhi, he left college and devoted himself for a time to the popularization of *khadi* (home-spun cloth), organizing a trading business for that purpose. After three years he entered the family business. The family's trading interests gradually broadened to include goods other than agricultural commodities, such as imported lanterns and other household goods. In the late twenties the firm became the agent for various manufacturing companies, including an enamel-ware factory in Calcutta. In the early days of the depression, the Calcutta enamel-ware concern failed. Believing that there was scope for the establishment of a similar firm in South India, where no such factory as yet existed, he persuaded the chief technician of the defunct company to enter into a partnership with him for the establishment of a new company in Madras (Firm 8). The technician-partner is still the works manager of the plant. The enterprise was launched on a very small scale in 1934, in a rented shed, with approximately twelve workers and an initial capital of Rs. 11,000. Five thousand rupees were contributed by the partners, and the rest borrowed from relatives and friends. For a time the firm confined itself to the making of enamel signs only.

The business flourished, and profits were made. It was decided in 1936 to go into the production of enamel-ware utensils and sanitary-ware, and the company was converted into a Public Limited Company, making this firm one of the three to seek to raise capital from the general public (the other two are Firms 22 and 37). The amount raised through the sale of shares was Rs. 1,50,000. An additional Rs. 35,000 were borrowed from the Government on a long-term basis, a mortgage on the property being put up as security. This expansion put the firm in position to take advantage

aimed at contributing to the industrialization of Andhra State, a great interest of this entrepreneur.

of the great demand for utensils which developed during the War, due to the expansion of army camps and hospitals.[10]

Most of the other proprietors in the group, like those just treated, have been led into industry in one way or another through their trading activities. The proprietor of Firms 13 and 14 (one individual), for example, was a dealer in scrap metal in North India. Learning in 1940 that an old British-established firm specializing in the manufacture of oil engines and sugar-crushers had gone into liquidation, he purchased it with a view to selling the machinery. As a speculative venture he decided to operate the business "for one year." The War demand for engineering goods of all types was on the rise, and profits were made from the year's operation. This decided him to continue in the manufacturing business, and a year later he also established a small steel-rolling mill (Firm 14) as an adjunct to his scrap-trading business.

For various reasons, the chief of which was shortage of raw materials, the rolling mill could not be brought into regular production until after the War. Even then the shortage remained, and the plant was finally leased out to a steel-importing company which is currently operating it. The initial investment in the rolling mill was of the order of Rs. 70,000, the cost being held down by the fact that most of the equipment was made in Firm 13. Both enterprises are now owned by the original proprietor's son, who inherited them upon the death of his father in 1952. The latter's brother assists the son in their management. Firm 13 is in deep trouble, the reasons for which are analysed in Chapter VI.[11]

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[10] By way of a digression, conversation with this proprietor provided some insight into the way in which a so-called "fatalistic" philosophy of life may be combined with energetic entrepreneurship. This proprietor professes to be a complete fatalist. Man, in his view, is absolutely helpless in the hands of a "Higher Power" and is like a person groping in the dark, inexorably led on to the destiny which awaits him, and powerless to avert it. While the question was forming itself in the writer's mind as to how such a view can be reconciled with enterprise and forward planning, the proprietor came to a surprising conclusion: "Therefore, since men are helpless, they must act boldly and with courage. No one must stand still in the dark, afraid to move. Everyone must at least take the few steps permitted him before falling into the pit!" In the late 1940's this entrepreneur did fall into something of a pit, in the form of an ill-starred glass factory which he established, only to have it fail within a few years. The reason for failure, according to him, was the simple fact that "I did not know how to make good glass, as I found out later when I visited glass factories in Europe."

[11] Cf. below, Chapter VI, Agricultural Processing Machinery, p. 276ff.

The founders of Firm 21, a brass foundry and rolling mill, and Firm 34, a manufacturer of brass utensils, were also originally dealers in scrap-metal. The former produces brass sheets and circles for utensil makers, many of whom are small village artisans. It was established in 1946 with an investment of Rs. 65,000, the source of which was the earnings of the owners' (two brothers) scrap-dealing business. Firm 34 manufactures brass household utensils, and was established in 1949. It is the first factory of its kind in the area, the industry until that time being exclusively in the hands of village craftsmen. The initial investment, again reported as coming from earnings of the trading enterprise, was approximately Rs. 30,000. Twenty-five workers were employed during the first year. The production process is highly labour-intensive, the factory being little more than an assembly of artisans under one roof.

Firm 28 was established in 1947 for the purpose of manufacturing textile machinery, chiefly hand- and power-driven reeling machines, as well as spare parts for textile mills. The proprietor has had an extremely varied career in the field of trading, having acted as agent for many different kinds of merchandising firms, bought and sold salvaged cargoes of sunken ships, and operated an export business in Burma. Since the middle 1930's he has been a dealer in textile machinery and mill stores, a business he entered at the time of the prewar expansion of the textile industry in Coimbatore.

Anticipating another wave of mill expansion after World War II — and correctly, as events turned out—he decided to establish a small manufacturing enterprise of his own. To this end he erected a plant including foundry and machine shop, and began production of textile reeling machines and spare parts. The plant was set up with the help of a hired technician, although the proprietor himself has some factory experience, acquired in various mills during the 1930's. Operations were begun with approximately twenty-five workers and an initial investment of Rs. 1,15,000 (which includes a sizable plot of land behind the factory for future expansion).

Firm 42, a concern producing small parts for passenger cars, such as luggage racks and licence plate holders, was founded by a member of a cultivator family originally from North Central India. This entrepreneur (now dead) started his business career in the early 1920's as a dealer in bicycles, to which he later added a cycle repair business. In the 1930's he gradually broadened his trading business to include automobiles and eventually opened sales branches in several South Indian cities, to which were later added repair shops. Firm 42 is an outgrowth of one of these repair shops. The original experimentation with manufacture was begun in the shop in 1952. The operation has now been set up independently in a new plant with an investment of approximately Rs. 1,40,000, which includes some extra land being held in reserve. This piece of property is valued at Rs. 45,000. Production is gradually being expanded as power difficulties are overcome (a great problem in the first days of operation), and the proprietor plans to add production of king-pins and brake parts when the necessary licences have been obtained. Automobile dealing has been maintained.

The two remaining firms in the present group, Firms 5 and 20, are interesting examples of departures from the usual pattern of merchant-entrepreneurship, in that there is no apparent logical connection between the proprietors' merchandising and manufacturing activities.

Firm 5, a plant manufacturing rice-hulling machines, was established in 1923 by a dealer in cloth and agricultural commodities. The traditional family business had originally been weaving, but that came to an end with the entrance into the trading business. The firm was set up with the technical assistance of the proprietor's son, who had been sent to study engineering under his father's brother, a teacher in an Indian engineering college.[12] While the son was still in engineering college, the father set up an aerated water works, with profits of his trading business, "in order to give his younger brother something to do." After the engineer son had graduated from college, and had gained some experience as an engineer in the city Public Works Department, the father decided to establish a foundry for the manufacture of rice-hullers. A small foundry was established at the site of the aerated water works (a line of activity subsequently abandoned), and production of spare parts for rice-hullers, the typical product of small foundries in the 1920's, was begun.

The founder of Firm 20, which is also a rice-huller producing plant, is connected with the Chettiar family just discussed. Upon the death of its founder, Firm 5 was inherited by his three sons as a joint family enterprise and was operated by them as such until

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[12] This son left the business in 1939 to establish his own enterprise (Firm 11). Cf. below, Group 4, Graduate Engineers, p. 60.

1945. In that year one of the sons died and a division of the estate took place.[13] The deceased left two widows, and the present proprietor, a plantain merchant, was called, as a relative of one of them, to help work out a satisfactory settlement. Upon settlement of the estate, he went into partnership with the two ladies, they contributing the capital, and he his managerial services. Initial investment was reported as Rs. 40,000, and average daily employment during the first year of operations was fourteen. The women later withdrew from the partnership and the plantain merchant is now the sole proprietor.

From these accounts of the origins of the firms established by merchants, it is clear that they differ in some respects from firms founded by rural artisans. Those in the present category have not typically begun as small repair and odd-job shops, but have been established complete with foundry as manufacturing units properly so-called. The reason for this is doubtless that the merchant-entrepreneur has a greater amount of capital at his disposal than his artisan counterpart, and is consequently in a position to begin on a larger scale.

Does the merchant, once he has entered the field of manufacturing industry, abandon his former trading activities, or maintain them alongside his new enterprise? Five of the ten entrepreneurs in the present group have maintained their older merchandising firms alongside the new business, and divide their time between the two. They are the proprietors of Firms 20, 21, 28, 34 and 42. With the exception of Firm 20, all these entrepreneurs use the older trading firm as the outlet for the products of the manufacturing enterprise. The proprietor of Firm 20 has found his plantain-trading organization unsuitable for the marketing of engineering goods. The remaining five entrepreneurs have withdrawn from trading as a separate business and are now devoting themselves exclusively to manufacturing. One of them, however, the original proprietor of Firms 13 and 14, maintained his scrap-metal trading organization as a separate enterprise until his death in 1952. At that time division of the family property resulted in separation of ownership of the trading and manufacturing enterprises.

[13] Firm 5 is now owned by the two surviving sons, one of whom manages it, the other being a silent partner. The latter is the proprietor of Firm 11, established by him as a sole proprietorship in 1939, and treated below in Group 4, Graduate Engineers.

Group 3. Former Factory Workmen

The third group of entrepreneurs encountered is made up of men who have worked for some years in one or more factories of the area and then have left that employment to establish workshops of their own. Six firms in the sample have come into existence in this way.

Table 14

FIRMS ESTABLISHED BY FORMER FACTORY WORKMEN BY YEAR OF ESTABLISHMENT, EMPLOYMENT AND MAIN PRODUCT OR ACTIVITY

No. of firm	*Year estab.*	*Employment*[a]	*Main product or activity*
17[b]	1942	72	Power-driven pumps
18[b]	1944	118	Power-driven pumps
31	1949	75	Pulleys; power-driven pumps
40	1951	80	Structurals
47[c]	1955	52	Power-driven pumps
48	1956	51[d]	Miscellaneous machinery parts

[a] Average daily employment in addition to proprietors during 1956.

[b] Since the establishment of this enterprise the proprietors have founded a second firm, Firm 37, treated below in Group 6.

[c] This firm is a second enterprise of the founder of Firm 17.

[d] Number employed at the time of visit.

All the firms in the present group are located in Coimbatore, and all the entrepreneurs are members of the Naidu Community except the founders of Firm 40, two brothers who are Gounders. The writer was able to verify that all these workmen are genuine entrepreneurs of the firms in question, as distinguished from so-called "working partners" sometimes taken in by businessmen when organizing a manufacturing unit, but who are little more than employees of the latter. The point is of importance if anything is to be concluded about the possibility of an ordinary worker's becoming a medium-scale industrial entrepreneur in present-day India.

The origins and general pattern of development of the firms in the present category bear close resemblance to those of the rural artisans of Group 1. Indeed, these workmen-entrepreneurs may, in many ways, be considered the more modern counterparts of the rural artisans predominant in the prewar group. All of them come from rural villages near Coimbatore, and as young men went off to work in one of the foundries near by. After working for ten or fifteen years on the average, usually in several different factories, they left their previous employment to set up workshops of their own. These enterprises, like those of Group 1, began on a very small scale as repair and odd-job shops. Only gradually did they develop into manufacturing units properly so called. The following case-histories fill out this general picture, and indicate sources of initial capital and other pertinent details.

The earliest instance encountered of a factory workman-entrepreneur is Firm 17, established in 1942. The enterprise is no longer owned by its founder, however, who is now the proprietor of Firm 47. This gentleman received his experience in Firm 6, the oldest pump-producing enterprise in the area, where he worked almost from its establishment in 1924. He began as a "raw-hand" (unskilled workman) and rose to the rank of foreman. In 1942 he left his old employment in order to set up his own establishment. His initial investment was approximately Rs. 7,500, consisting of his own savings (about half the amount) and borrowings from friends and relatives. The establishment employed five or six helpers during its first year of operations, and began as a repair shop for power-driven pumps (the line in which the founder was experienced) and other types of machinery, principally oil engines. In 1947 he decided to shift to pump manufacture, and in order to obtain the necessary capital took in two partners, the manager of a local textile mill and a local landlord-cultivator. The total capital contributed by all three amounted to approximately Rs. 1,00,000. A site was acquired near the original repair shop, a foundry and other machinery installed, and production of pumps begun. Employment during the first year after reorganization of the business averaged twenty-seven. Profits were good, and the firm expanded rapidly.[11] In 1955, however, "serious misunderstandings" developed among the partners. The original founder and mill manager sold their shares to the landlord-cultivator, who is now the sole proprietor and actively managing the business.[15] The original workman-founder immediately set up another pump manufacturing establishment (Firm 47). Initial investment in the new enterprise was Rs. 60,000 and initial employment, 20 workers.

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[11] The book-keeper of this firm from 1947 to 1955 told the writer that the initial investment was recovered in three years. This man was employed by Firm 51 when the study was being made.

The founder and present proprietor of Firm 31 (a manufacturer of pulleys, with pumps as a secondary line) worked in various foundries of the area for about ten years before setting up his own small workshop. The enterprise was launched on a very small scale as a repair shop for various kinds of machinery. Initial capital was Rs. 4,000, consisting of his own savings plus borrowings from relatives, including the proprietor's father, a local landlord with modest holdings. At the outset only two helpers were employed in addition to the proprietor. In 1955 the workshop was radically reorganized. It was moved to a new location, a small cupola and machine shop installed, and the manufacture of pulleys and pumps begun. The former line was chosen because of the mill expansion taking place in the area. Pump manufacture was added as a form of insurance against too great dependence on only one activity. The expansion was reported as being financed out of previous earnings and borrowings from friends and relatives, the total capital thus raised being Rs. 70,000. Production in the new location was begun with twenty workers during the first year.

The two remaining firms of the present group differ from those just discussed, in that they were founded originally as partnerships. Firm 40, a structural workshop, was established by two brothers (Gounders) who had worked in various foundries of the area, notably Firm 7, a pump manufacturing plant. They chose the structural field because they had acquired experience in such work during the course of their factory employment and because of the building boom taking place in the area. Original investment was Rs. 20,000, approximately two-thirds of which was borrowed from the usual "relatives and friends," the rest coming from savings they had accumulated.

Firm 48 was established by four relatives as a four-person partnership. Only one of them should be considered the entrepreneur, however, since the enterprise is largely the outcome of his initiative and enterprise. After working at various jobs in the moulding and fitting sections of several foundries in the area, this man conceived the ambition of going into business for himself. He persuaded two of his relatives, workmen like himself, to join him as working partners. The initial capital of Rs. 60,000 was provided by another relative, described as a "wealthy landlord with a number of tenants, for whom the present enterprise is a side business." This firm began operations early in 1956 with approximately thirty-five workers.

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[15] This proprietor sought advice from the writer on engineering training for his son, who was preparing to depart for the United States shortly in order to secure an engineering degree before entering his father's business, an indication that the proprietor intends to stay in the engineering-manufacturing industry.

Firm 18 was organized in a very similar fashion. It is a partnership consisting of two workmen, who are brothers, and a former textile mill manager, related to them by marriage. The workmen took the initiative in organizing the enterprise, which began operations on a small scale as a repair shop and manufacturer of spare parts for oil engines. The former mill manager provided the initial capital of Rs. 30,000, and has subsequently left his former employment to manage Firm 37, a second enterprise launched by the partners five years after the establishment of Firm 18.[16] This man told the writer that the thirty thousand rupees consisted of personal savings out of his mill manager's salary of Rs. 500 per month. It seems doubtful that the sum could have been accumulated in that way, since it would have involved living on less than half his salary for a decade. The possibility cannot be ruled out, however. One occasionally meets in India a person with a high salary who continues to maintain a very low standard of living.[17] Both workmen-partners of the present enterprise worked in various foundries for ten or twelve years before starting Firm 18, and one of them had industrial school training as a young man. This experience provided sufficient "know-how" to enable them to switch from repair work to pump manufacture toward the end of the 1940's, when that line became profitable consequent upon the Indian Government's restrictive import policy.

Group 4. Graduate Engineers

We come now to one of the most interesting types of entrepreneur encountered in the course of the study, namely, the graduate of an engineering college who has organized his own industrial enterprise. The writer embarked on his investigations expecting to find that most of the firms had been organized by merchants or manufacturing firms already in existence. It was something of a surprise, accordingly, to find the largest single group[18] of entrepreneurs composed of graduate engineers, most of them young, and nearly half of them possessing foreign engineering degrees. Twelve firms were discovered to have been established by men of this type.

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[16] Firm 37 is button manufacturing factory.

[17] The writer was told by a person very well acquainted with a certain family in Madras that the head of the family earns approximately Rs. 500 per month and his son Rs. 150, and that the family, consisting of three persons, lives on the son's salary and banks the father's.

Table 15

FIRMS ESTABLISHED BY GRADUATE ENGINEERS BY YEAR OF ESTABLISHMENT, EMPLOYMENT AND MAIN PRODUCT OR ACTIVITY

No. of firm	*Year estab.*	*Employment* [a]	*Main product or activity*
10	1935	100	Structurals
11	1939	53	Agricultural processing machinery
15	1941	82	Rough castings; machinery parts
16	1942	72	Agricultural processing machinery; machine tools
19	1945	80	Structurals; tractor trailers
22	1946	4,434	Textile machinery; electric motors; oil engines
23	1946	248	Textile machinery; misc. machinery
26 [b]	1947	412	Electric motors
30	1948	57	Non-ferrous castings
35	1949	56	Radios
36	1949	79	Power-driven pumps
52 [c]	1957	53	Electric motors

[a] Average daily employment in addition to proprietors during 1956.

[b] This firm has become a branch of Firm 22.

[c] A second enterprise of the founder of Firm 36. Employment figure refers to time of visit.

The social background of these entrepreneurs is quite varied. Five are Brahmans (Firms 10, 16, 19, 30 and 35); five are Naidus

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[18] The second largest if domestic merchants and importers are grouped together.

(Firms 22, 23, 26, 36 and 52); one a Chettiar (Firm 11); and Firm 15 was established by two Brahmans and a Christian. Of those whose father's occupation could be ascertained, two are the sons of Government officials, two the sons of merchants, four the sons of landlord-cultivators, one the son of a doctor, one the son of a textile mill owner, one the son of an engineer, and one the son of a workman. As a group it is clear that they come from upper middle-class or well-to-do families. The following case-studies indicate the step by which these men found their way into the ranks of the industrial entrepreneurs, the sources of their capital, and other pertinent details.

The oldest firm to be established by an engineer-entrepreneur is Firm 10, a structural workshop founded on a small scale in 1935. The proprietor stated that there was a long tradition of engineering in his family and that his father had been chief engineer in one of the South Indian states. He, himself, after graduating from an Indian engineering college, worked for a time as an engineer in the Kolar gold mines. Later he decided to go into business for himself and chose the structural field, since his training had been in mechanical engineering. He declined to indicate the sources of his initial capital.

The proprietor of Firm 11, the only other prewar firm in the present group, has already been met in Group 2, in connection with the establishment of Firm 5, an enterprise launched by his father in 1924. The son of a merchant (originally a weaving) family, he studied engineering in the early 1920's in an Indian engineering college, worked for a few years as an engineer in the city's Public Works Department, and then assisted his father in the establishment of Firm 5. He acted as works manager of this firm until 1937, when " domestic misunderstandings made him to get out [*sic*]." In 1939, with his own savings as well as revenues from some twenty acres of rice land which he owns, and which is farmed by tenants, he established Firm 11. Initial investment was Rs. 11,000, and initial employment twenty-five workers. The firm has developed as a producer of rice-hullers like its predecessor. Operations were begun in a rented shed, which accounts for the small initial investment.

Firm 15 has three partners as its founders,[19] all of them possessing engineering degrees from a local engineering college, and all of them employed for some years by a large British-owned engineering company, for whom they worked as "outside engineers," supervising installation of imported machinery sold by the company. They left this firm together in 1941, as the aftermath of a dispute which involved the discharge of one of their friends, and decided to go into business for themselves. With Rs. 4,500 raised by each partner's contributing Rs. 500 and the rest borrowed from friends, they set up a small automobile repair shop in which six workers, in addition to themselves, were originally employed.[20] During the early years of the war the business was broadened somewhat. An automobile plant in the area began placing orders for piston-boring, repair of machine parts, etc. and gradually the original activity of automobile repair work was dropped. The new work involved casting, and dependence on local foundries for this casting soon began to cause difficulties. Deliveries were often delayed, according to the proprietors, while the foundry in question went ahead with its own work, and quality of work was often unsatisfactory. To escape these inconveniences, and since they also wanted to expand, the partners decided to install their own cupola. Profits had been good during the war years, and were ploughed back to finance the expansion and installation of foundry. A new location was chosen, a building erected, and the new plant went into operation in 1948 representing an investment of approximately Rs. 1,00,000. Twenty workers in addition to the proprietors were employed during the first year of operation after reorganization. This firm has gradually come to specialize on rough castings only, principally for machinery parts. Work is done on order for several large engineering firms of the area, including the firm for which all three partners formerly worked.

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[19] Originally four, one having left the firm some years after establishment. This man, while remaining a silent partner in Firm 15, has started his own small workshop which is engaged in general odd-job work.

The founder of Firm 16, a producer of agricultural machinery, is the son of an engineer-father, originally from a rural family in South India. The son received training as an electrical engineer in Bombay, and upon graduation worked for a time for a large firm in Calcutta. In 1929 the family decided to go into business and established a small flour mill in Madras. The son left his engineering job in Calcutta and entered the family business, which was located at the site where Firm 16 now stands. To "keep in his hand at engineering," as well as to provide for necessary machinery repairs in the flour mill, he established a small engineering workshop in connection with the mill. This development took place in the early 1930's. In 1942 with imports of engineering goods curtailed by the war and demand for them rapidly increasing, he saw an opportunity to enter manufacturing and decided to expand the workshop. With Rs. 15,000 raised from his own savings plus borrowings from relatives, a foundry and machine tools were installed. The flour mill (still to be seen behind the workshop) was closed down and manufacture of rice-hullers begun. Production has been considerably diversified, one of the main products now being a disintegrator for the pulverizing of ground-nuts and oil-cakes designed by the engineer-founder.[21]

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[20] According to the third partner, interviewed somewhat later, beginnings were even somewhat smaller. He said that he continued to work for another company for two years after Firm 15 was set up, "since there wasn't enough work for all of us in the garage."

The proprietor of Firm 19, an only son, was set up in business by his father, with the help of well-to-do friends, because the father "had no ancestral lands to leave his son."[22]

The son, after graduating from an Indian engineering college in 1939, joined the faculty and later became principal of a technical school in South India. Firm 19, a structural engineering concern, was organized in 1945 with capital totalling Rs. 1,50,000 loaned by relatives and friends.[23] The Firm was organized as the son's individual proprietorship. Sixty thousand rupees of the initial capital were invested during the first year, and activity was begun with ten employees. The remainder of the original capital was invested over the next two years. Almost half of the original sum borrowed has been repaid. This firm began as a structural workshop only, but has been diversifying its activities steadily. At the present time, only half its annual turn-over is in the construction field, the rest consisting of carts, tractor trailers and small machine tools. At the time the writer was visiting the firm, the proprietor was organizing a second unit for the manufacture of cranes (of various sizes up to two tons) and cement mixers.[24]

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[21] This man died a few years ago, leaving the firm to his son who now manages it. The present proprietor is not an engineer, but has a Bachelor of Science degree from a local college, after which he received "practical engineering" training from his father, as did his present works manager.

[22] The father was originally a master-weaver, shifted from that into the chemical and dyestuffs trading business, and finally opened a soap factory, still owned by the family.

[23] The proprietor said that his first choice was to enter the field of textile engineering, but that would have required too much capital, "at least one million rupees." It appears that he overestimated the amount since Firm 22 entered that field in 1945 on a small-scale with an initial investment in fixed and working capital of less than one hundred thousand rupees.

The founders of the next firm in the present group, Firm 22, are among the real industrial pioneers of postwar India. This firm is the second in the country to begin the manufacture of textile machinery, and the first in South India.[25] It is now one of the leading producers of textile machinery in India, and its origins, consequently, are of more than usual interest. Since 1946 the firm has been a Public Limited Company, but is still controlled by the two founder-partners who constitute the firm of managing agents formed for the management of the concern. Only one of the partners is active in the day-to-day management of the firm, however, and for the sake of convenience he will be referred to as the "managing partner." His colleague's time is almost entirely taken up with the management of his family's textile mill.[26] The former partner is the principal entrepreneur in the concern's establishment and subsequent development.

The managing partner of Firm 22 is the son of a land-owning family in the area. The family has no tradition of industry or business. Upon his return from England in 1938, where he had obtained a degree in the field of mechanical engineering, he became chief technician in a newly started electric-motor factory. It was in this capacity that he gained much of the experience needed for the establishment of his own enterprise. During the War the motor factory shifted into the manufacture of parts for British Royal Air Force planes operating from a base near by, from which they flew on bombing missions over Burma, then occupied by the Japanese. The technical experience gained in this work, he said, was invaluable. The British were supplying the latest type of machinery to the factory, as well as two expert technicians to train workers, many of whom were "raw-hands" from nearby villages. When he left this firm in 1945 to set up Firm 22, he was able to take with him ten British-trained technicians, who were of great assistance in overcoming problems connected with establishment of the new venture. This enterprise was a small plant for the manufacture of spare parts for textile machinery, a great demand for which was anticipated during the postwar years, due to the curtailment of imports of textile machinery during the War. Initial investment was less than Rs. 1,00,000, and the plant went into production with an average employment of twenty during the first year.

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[24] When asked why he was organizing the new unit as a distinct firm, rather than merely expand the existing one, the proprietor gave an interesting answer: "So as to avoid labour trouble by not growing too large." An added reason may be that he wishes to keep exclusive control of the original firm, since he is organizing the new unit "together with others."

[25] According to the *Investor's Encyclopedia* (Madras: Kothari & Sons Ltd., 1956), p. 654, the first Indian firm for the manufacture of textile machinery came into existence in 1939, but did not get into actual production until after the War because its plant had been requisitioned by the Government during the War years. The firm is located near Calcutta and is a Birla enterprise. Firm 23, treated below, began production of textile machinery a little later than Firm 22, although it had experimented with such production earlier.

[26] This second partner is also a graduate (textile) engineer. The two partners studied in England together.

By 1946 the Indian textile industry was clamouring for machinery for replacement and expansion purposes, imported equipment being still very scarce. In order to take advantage of the situation, the founder of Firm 22 decided to attempt manufacture of complete ring frames. To obtain the necessary capital the original enterprise was reorganized as a Public Limited Company. Rs. 6,00,000 were raised, a new plant constructed and operations begun. The growth of the company during the past ten years has been spectacular,[27] and the diversification of its activities considerable, as will be seen in Chapter VI. The firm today employs nearly four thousand persons in three branches besides the main plant, one of which was originally Firm 26, a manufacturer of electric motors. A second branch manufactures diesel engines, the third confining itself to manufacture of textile machinery parts for the main plant.

This firm is of special interest by reason of its very rapid growth from such small beginnings, in an industry not easy to enter. Development has been financed out of earnings, except for a loan of Rs. 5,00,000 obtained from the Government of Madras' Industrial Investment Corporation and Rs. 4,00,000 from the calling of additional shares during 1955. The pent-up demand for textile machinery which accumulated during the War, as well as the protected character of the market since 1950 have been the chief external factors in this firm's success. The character of the market, plus the fact that the entrepreneur had the necessary qualifications to overcome the technical problems involved in producing machinery of adequate quality—his main problem in the beginning—have made it possible to advance rapidly with relatively little outside capital.

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[27] Total assets as of April 30, 1956, were valued at Rs. 72,73,981, and fixed assets (net) at close to Rs. 20,00,000. (SOURCE: *Director's Report* for the year ending April 30, 1956.)

Firm 23 is also one of the pioneers in the manufacture of textile machinery in South India. This enterprise is not organized as a distinct firm but as an integral part of a family-owned complex comprising a textile mill and a printing press. It is the personal project of the younger son of the family in question. This man is a highly qualified electrical and mechanical engineer, trained at a leading engineering college in the United States, from where he returned to India after the War. In desperation at the shortage of textile machinery during the War, his brother had attempted to manufacture certain types himself, but gave up because he found the cost prohibitive. Manufacture of textile machinery had long been the ambition of the engineer-son, and when he returned to India after the War he endeavoured to get the family to finance a second attempt. They refused, but did allow him to set up a unit for the manufacturing of printing presses for use in the family press. By successfully producing printing equipment the engineer was able to convince his father and older brother that he could successfully produce textile machinery as well, and they consented to provide the necessary funds. In 1949–50 he visited Japan to purchase machinery and to observe manufacture of textile machines there. The spinning frames and other machines now produced by Firm 23 are used mainly in the family's own and associated mills but are also sold in the open market. Textiles and printing have remained the main interest of the family. The engineer-son is anxious to expand on a major scale in the engineering-manufacturing field but cannot persuade his father and brother to provide the necessary capital. He attributes this reluctance to their being accustomed to the quick turn-over characteristic of the textile industry, "in which you buy cotton today and have yarn tomorrow."

The remaining firms in the present group can be treated more briefly. The founder of Firm 26 is an electrical engineer who received his education in England. The enterprise was established in 1947 as an electric-motor manufacturing plant. The amount initially invested was not ascertainable, but some idea of initial size is gained from the fact that approximately twenty-five persons were employed during the first year. Firm 22 subsequently invested in this enterprise, which has since been merged with the larger firm to become one of its branches. Motor production has been continued, most of the output being used by Firm 22 for its own textile machines. Its former proprietor is now engineer in charge of the purchase, sales and service departments of Firm 22.

Firm 30 is an ancillary enterprise which specializes in non-ferrous castings for other firms in the area, as well as in the repair of machinery for tea factories. It was founded in 1947 as a partnership consisting of two brothers. One of these men studied metallurgy in an Indian engineering college, and the other is a lawyer and director of a large tea company in South India. The firm was set up on a small scale with fifteen employees and an initial investment of Rs. 20,000 contributed by the partners themselves. In addition to its manufacturing and repair activities, a large trading business has been developed in metals and machinery, principally foundry equipment.

The firm just discussed has added trading to its original repair and manufacturing activities. Occasionally, in contrast, the engineer-entrepreneur begins as a trader and later moves into manufacturing. Such has been the development of the next firm in the group, Firm 35, a manufacturer of radio receiving sets. The founder of this enterprise is the son of a State Government official. After majoring in physics in college, he went to England for additional studies in physics and engineering. While in England he became interested in radio engineering and, after two years of graduate work, worked for an additional two years with the British Broadcasting Corporation as an apprentice engineer. Here he met a fellow Madrasi working in the same field, and the two began to plan a radio-manufacturing enterprise when they returned to India, which they did on the eve of World War II. Unable to put their plans into operation during the War years, because of the impossibility of obtaining the necessary equipment, they organized a small radio sales and service firm instead. This firm provided its founders with business as well as technical experience. In 1946 the partners began experimenting on a small scale with the manufacture of radio circuits and by 1949 were ready to launch their manufacturing enterprise. Because of their now well-established sales and service firm, the partners were able to obtain a loan of Rs. 1,00,000 from a local bank. Of this amount Rs. 40,000 were invested in machinery, and the rest held as working capital. The future development of the enterprise will be discussed in Chapter VI. The sales and service agency has been maintained and serves as the marketing outlet for the manufacturing unit.

The proprietor of the last firm in the present section, Firm 36, also received his engineering training in England where he studied electrical engineering. The firm is a partnership consisting of four brothers. The engineer-partner, however, actually manages it and is the one chiefly responsible for its development, his brothers devoting their time to the management of the family lands (consisting of about twenty-eight acres under cultivation). This engineer received training in electrical engineering in England. Caught there by the War, he worked for five years as an engineer for a motor manufacturing plant. While he was still in England, his brothers were advised by friends in the pump industry in India, the proprietors of Firm 6, that they would do well to invest in that industry "as it would certainly expand after the War." The project received the approval of the brother in England, and a building was erected on the family property while his return was awaited. Some machinery was installed with the help of Firm 6. Production was begun in 1949, shortly after the return of the engineer from England. Initial investment was approximately Rs. 60,000 and ten workers were employed during the first year. The firm has expanded considerably since its establishment, and in early 1957 a second unit was organized for the production of electric motors. This unit, Firm 52, had not yet gone into production at the time the writer was visiting the firm, but was shortly to begin operations with about sixty workers, the number to be expanded to approximately a hundred and fifty within a year, according to the proprietor's estimate. The enterprise is housed in a rented shed equipped with Rs. 60,000 worth of machinery. The motors will be supplied to the pump-producing unit and also sold on the open market. The new unit is reported to have been financed exclusively out of the profits of Firm 36.[28]

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[28] The engineer-partner reported many disagreements with his landlord brothers regarding expansion policy. He must consult them, as co-owners, on all matters of long-range policy. He wants to plough back all earnings and constantly expand the scale of operations. His brothers, on the other hand, are much more conservative and worry about the risks involved in future growth. The situation is similar to that prevailing in Firm 23, whose engineer-entrepreneur is dependent on his father and older brother for expansion capital. Such difference of view-point is said to be very common when partners have very different technical and economic backgrounds.

From the case histories just summarized, it is clear that the appearance of the graduate engineer in the ranks of the industrial entrepreneurs is, at least in the area studied, largely a post-World War II phenomenon. Only two of the firms ante-date the War. Most of these men are also first generation industrialists, being the first members of their families to enter industry, and in some cases, any business at all. The engineer-entrepreneurs have established their firms in a small scale. Their average initial investment has been slightly less than Rs. 40,000, and employment during their first year of operation has averaged approximately eighteen workers. This scale of initial operation approximates that on which factory workmen have launched their enterprises, but is smaller than the scale on which merchant-entrepreneurs have established their firms.[29]

In terms of the sociology of the situation, it is interesting to note the high proportion of members of the Brahman Community among the present group of entrepreneurs. Five of the twelve firms have been established by Brahmans, and these, in turn, are nearly half of all Brahman-entrepreneurs encountered. Entrance into manufacturing industry is at a wide remove from traditional Brahman activity, which in modern times has traditionally lain in the fields of education, Government service and the professions. There is an awareness among members of the Community that "times are changing," however, and that industry is becoming a field of increasing opportunity for their sons. There is also a feeling on the part of South Indian Brahmans that their Community is being discriminated against to some extent in their traditional spheres of activity. There is no doubt that during British times the Brahman Community was favoured in certain respects, particularly in the matter of Government service, and there is evidence that with Independence some reaction set in, at least in the southern part of the country. Be this as it may, many Brahmans feel that it is true, and several of the entrepreneurs encountered mentioned this as a reason for entering industry. Only one reported that members of his Community disapproved the move as alien to the Brahman tradition. It is noteworthy that several of the important large engineering firms in Madras are Brahman-controlled.

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[29] For detailed comparison of all entrepreneurial groups, cf. Table 38, below pp. 175-6.

Group 5. Importers

The next group of entrepreneurs to be discussed consists of men who were established in the import business before branching out into engineering-manufacture. Five firms are found in this group.

Table 16

FIRMS ESTABLISHED BY IMPORTERS, BY YEAR OF ESTABLISHMENT, EMPLOYMENT, AND MAIN PRODUCT OR ACTIVITY

No. of firm	*Year estab.*	*Employment* [a]	*Main product or activity*
38	1952	65	Radios
43	1952	200	Fountain pens
44	1953	77	Bicycles
45	1953	65	Electrical products
46	1955	60	Electrical products

[a] Average daily employment in addition to proprietors during 1956.

Two of these firms have been established by Chettiars (Firms 38 and 44), two by Brahmans (Firms 45 and 46), and Firm 43 by a Christian.[30]

The oldest firm in the present group, Firm 38, was established as an importing company by the present proprietors, two brothers, members of a rural land-owning family from Tanjore. The father, according to the sons, made two unsuccessful attempts to establish a cloth-trading business, after which he helped finance the two sons in setting up a small firm for the import of engineering goods in the middle 1930's. This importing company was established in Madras, and began importing various kinds of electrical goods, coming gradually to specialize in pumps and radios imported from Europe, England and the United States. Devaluation of the rupee in 1949 put an end to most of the firm's business with American firms. The Government of India's policy of encouraging

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[30] Another firm visited, but not included formally in the study because of the incomplete nature of the information received, also belongs to this group. The firm is a wood-screw manufacturing concern, whose parent company is a large importing firm dealing in many different types of industrial products and owned by a wealthy Chettiar with extensive business and banking interests.

"progressive manufacture" in India, and the accompanying import restrictions, forced the firm from 1950 to import radio sets in knocked-down condition in place of fully assembled radios. The firm has thus been forced into manufacture, rather than entering the field voluntarily, and is still much more of an assembler than a manufacturer properly so called. Manufacture of a few parts has been begun, however, chief among which are transformers and radio cabinets. In this respect Firm 38 differs markedly from the radio manufacturing concern met earlier (Firm 35 of Group 4), which is an almost entirely self-contained manufacturing unit and makes all the components that go into its sets except tubes, resistors, and condensers. In general, the entrepreneurs of the present category have entered manufacturing industry reluctantly, and this is the chief reason for grouping them separately from the merchants of Group 2. Entirely different forces have been at work to lead them into the manufacturing field. It was not possible to secure initial investment and employment figures for Firm 38 because of its organic connection with its parent trading enterprise. Approximately sixty-five persons were employed in assembly-manufacture of radios in 1956.[31]

Firm 43, a manufacturer of fountain pens, is the only firm among the fifty-two under study which was established in collaboration with foreign capital and technical assistance. It is a Private Limited Company controlled by the proprietor and members of his family. The family's native place is Tanjore in Madras State, and its traditional occupation for many generations has been trading in diamonds. Over the years, and especially in the late 1930's, the trading activities of the family firm were diversified to include export and import of various types of manufactured articles as well as precious stones. At the close of World War II, when trade relations were resumed between India and Japan, the proprietor obtained the agency of a large Japanese manufacturer of fountain pens, first in Pondicherry and later throughout the entire South. By 1950 the Indian Government had begun restricting import of fountain pens to stimulate domestic manufacture, and an arrangement was worked out by the proprietor and the Japanese company for establishment of a modern manufacturing unit in Madras, with the assistance of Japanese capital and technical aid. The Japanese contributed thirty per cent of the initial capital of Rs. 5,00,000 and sent a team of technicians to set up the plant, the machinery for which was imported from Japan, and to train Indian workers in fountain pen manufacture. To raise the remaining seventy per cent of the capital the proprietor was forced to rely on personal savings and sale of shares to relatives and family members, after trying unsuccessfully to interest outside investors. He remarked that many persons are now interested in investing in his company, but that he prefers now not to take in outsiders. At the time the writer was visiting the firm, the Japanese technicians had returned to Japan, leaving behind one representative to look after the interests of the Japanese company and to act as technical adviser. Quality control is provided by the foreign firm, pens being sent to Japan for testing. Many difficulties have been encountered in meeting the quality standards expected by the Japanese company. Fifty-five workers were employed in pen manufacture during the first year of operations.

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[31] The proprietors of Firm 38 also own another manufacturing unit in Calcutta, established in 1950. The plant produces dry cell batteries, the great bulk of which are sold to the Government Posts and Telegraph Department.

The proprietors of Firm 44, the next in the group, are two brothers who began their business careers in the middle 1930's with the establishment of a small bicycle importing business, to which a cycle repair shop was subsequently added. In the early 1950's, realizing that the cycle importing business had an uncertain future as a result of the Indian Government's programme for stimulating domestic manufacture of bicycles,[32] they decided to establish a small manufacturing unit of their own. This plant was set up in 1953 with an investment of approximately Rs. 1,00,000. The firm manufactures only the cycle frames, the other components being obtained from suppliers in North India, the main centre of the Industry. The complete cycles, assembled in the plant, are marketed through the trading firm, which has also continued to import British cycles. Employment during the first year averaged nineteen and since then has grown to nearly eighty.

Firm 45 was established in 1953 as a manufacturing subsidiary of an importing firm specializing in the import of electrical goods of an industrial nature, chiefly line materials and transformers. The importing company dates from 1924. In 1952 and 1953, due partly to the increasingly restrictive nature of the Government's import policy, and partly to the recession in economic activity, the importing company suffered losses. It was decided to attempt to improve matters by establishing a small manufacturing plant. The new unit was set up as a separate firm, organized as a Private Limited Company. Seventy-five thousand rupees were raised by the sale of shares, chiefly to directors of the parent concern and their friends and relatives. Manufacture of high-tension air-brake switches and insulators was begun on a small scale in early 1954 with some twenty-five workers. The firm has been plagued with difficulties of a technical nature, as well as with labour troubles, and the proprietors are very disappointed over the outcome of their industrial venture thus far.

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[32] For a survey of the progress of the programme and future plans, cf. *Programmes of Industrial Development, 1956–61* (New Delhi: Government of India, Planning Commission, 1956), pp. 104–12. This volume provides much useful information on the development of India's major industries during the period of the First Five Year Plan (1951–56), and projects included in the Second Five Year Plan (1956–61).

The founder of Firm 46, the last firm in the importer-entrepreneur group, began his business career, like the proprietors of Firm 44, in the cycle trading and repair business. His father was a small importer and dealer in many types of goods, chiefly cycles, marketed in rural areas of South India. In the early 1930's the founder of Firm 46 went into the cycle-importing business for himself, the initial capital being supplied by a fellow-villager who joined him as a partner, to withdraw subsequently, leaving the firm a sole proprietorship. In time a repair shop was opened in connection with the cycle dealing. Activities were broadened in the late 1930's to include import of other types of engineering goods, notably pumps from England. During the War years, it became impossible to continue importing these products, and the proprietor turned to domestic buying and selling of new and used machinery, chiefly electrical equipment. Thus he gained his first experience in the electrical field. Convinced that the market for electrical equipment would expand in India after the War, he decided to continue in this field. In partnership with his brother, accordingly, he organized a firm for the importation of generating and other heavy electrical equipment.[33] The firm has grown rapidly and now imports from many different countries. A designing office has recently been set up in England. Although their import business is not at present threatened, since the type of equipment specialized in is not manufactured in India to any great extent, the proprictors of Firm 46 realize that the future trend in the country is toward manufacture. This consideration motivated them, in 1955, to begin experimental manufacture of switch-gears in the trading firm's workshop. This line of activity is being expanded, and a new firm for the production of transformers is being organized in collaboration with British capital and technical assistance.

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[33] This decision he said was taken against strong urging of friends who pointed out that the field was dominated by large British companies making it no "business for amateurs." He is proud of the fact that his first deal was a contract with the Government of Madras for the importation and erection of a complete power station (of 2,500 kW capacity), installed as one of the city substations. This power plant was recently moved to the site of the Neyvelli lignite deposits.

When treating the merchant-entrepreneurs of Group 2, it was mentioned that half of them have maintained their trading activities alongside their new industrial enterprises. Among the importers the percentage is even higher. Four of the five have continued to maintain their trading firms, and importing is still the major activity of three of them. Two firms, 38 and 45 give a definite impression of being "reluctant industrialists" who have been more or less forced into the field and would gladly withdraw.[34] Firm 44 still does considerable trading in imported cycles, but is expanding its manufacturing plant so that manufacture is beginning to overshadow the firm's importing activities.

The most enthusiastic industrialist of the group is the proprietor of Firm 43, the manufacturer of fountain pens. He has liquidated his trading firm in order to devote himself entirely to the development of his manufacturing enterprise, which is being expanded rapidly. At the time the writer was visiting the firm a new plant was under construction behind the old one, and this new unit will be equipped with the latest type automatic machines purchased in Japan. The effect of the expansion programme will be to double the plant's capacity. In addition, the proprietor is busy with plans for the organization of ancillary industries on a cottage and small-scale basis for production of some articles he must now buy from others, including glass bottles for the ink he produces and ebonite rods for the pen necks.

Since initial capital and employment figures were not available for two of the five units included in the present category, it is difficult to compute an average initial size which is comparable with other groups. However, the three firms for which data are available indicate that firms established by importer-entrepreneurs have begun operations on the largest scale of any group encountered.

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[34] In the case of Firm 38 this judgment refers only to its radio manufacturing activities, not its battery plant.

Group 6. Manufacturers

The next type of entrepreneur to be discussed is the manufacturer with an already established enterprise who has moved into the engineering-manufacturing field. Four firms have been established by men of this type.

Table 17

FIRMS ESTABLISHED BY MANUFACTURERS BY YEAR OF ESTABLISHMENT, EMPLOYMENT AND MAIN PRODUCT OR ACTIVITY

No. of firm	*Year estab.*	*Employment*[a]	*Main product or activity*
27	1947	53	Well-boring equipment
29	1947	65	Stainless steel utensils
37	1949	150	Nut and plastic buttons
51	1956	60	Power-driven pumps

[a] Average daily employment in addition to proprietors during 1956.

Two of these firms have been founded by Naidus (Firms 37 and 51), one by a Chettiar (Firm 29) and one (Firm 27) is a partnership consisting of two Chettiars and a Naidu.

The founders of Firm 27 are the owners of a cotton textile spinning mill, who established the firm originally for the purpose of making doubling frames for use in their own mill. A "working-partner" was taken in on an equal basis with the two financial partners, to handle the technical side of production. This man had worked for about ten years in various foundries and factories in the area. In order to make more efficient use of plant, it was decided in 1949 to add to the firm's activities the manufacture of agricultural machinery, particularly well-boring equipment. A foundry was erected in the textile mill owned by the two financial partners, although Firm 27 is located some distance from this mill. Why this arrangement was chosen was not clear. The introduction of well-boring equipment makes this firm a pioneer in the area, as it was the first enterprise to undertake such work, well-boring equipment having been imported from abroad until that time. It is still the only firm in the state making such machines, so far as the writer was able to discover, several imitators having subsequently dropped out of the field. In addition to manufacturing well-borers, Firm 27 has developed a contracting business for the leasing of its machines on a hire basis. The manufacture of doubling frames has become a secondary line of activity. Firm 27 began on a very small scale, with an investment of Rs. 15,000 and an average employment of about nine workers during the first year of its operation.

Firm 29 was established by a family who for many generations have been craftsmen-jewellers and silversmiths. The family is originally from a village near Vellore in Madras State. In the early 1900's the present proprietor's grandfather moved from the village to Madras City where he opened a small craftsman-jewelry shop which has been handed down in his family ever since. This shop has grown to a considerable extent over the years, and is the parent establishment of Firm 29. The latter was established in 1947 for a double purpose, namely, as a second silver-working shop and for the manufacture of stainless-steel utensils, for which a rising demand was foreseen after the War. The proprietor considered the new line as a more or less logical development of his cutlery manufacture, an activity introduced by his father shortly after the First World War, and which was the first break with the family's pure craft tradition in that some machinery was used in the process of cutlery manufacture. The financing of the new concern was primarily a family affair although some shares were sold to friends. Twenty-seven workers were employed during the first year. The bulk of the initial capital of Rs. 1,50,000 came from the jewelry enterprise. Without these funds, the proprietor reported, it would have been impossible to continue the enterprise, which ran into trouble from its inception. The cause of the difficulty was severe competition from two large companies, one a producer of stainless steel and the other of aluminium utensils, both using mass production methods. As a result of this competition, Firm 29 lost money for the first seven years of its existence, and in the proprietor's opinion became firmly established only in 1955. The way in which the initial difficulties were finally overcome is discussed in detail in Chapter VI.

Firm 37 is a second enterprise established by the proprietors of Firm 18, a pump manufacturing concern, discussed above in Group

3. This firm, a button-manufacturing establishment, was set up in imitation of Firm 24, the pioneer in that field in South India.[36] It was financed through earnings of Firm 18, and through the sale of shares to the public. This firm is the only one in the sample which was organized in the first instance as a Public Limited Company. The enterprise was established as a producer of nut buttons with an initial investment of Rs. 1,00,000 and a work-force during the first year of sixty workers. The firm has grown rapidly since its establishment and in 1955 was moved to a new modern plant located in the country about seven miles from the city. There have been far-reaching changes in the Indian button industry since this enterprise came into existence, due to the progressive displacement of nut buttons by plastic varieties, the effect of which on Firm 37 will be discussed in Chapter VI.

The last firm in the present section, Firm 31, was established only a few months before the writer's visit, and had not yet come into full operation at that time. The enterprise is the venture of two brothers, originally cultivators in the area, who shifted into textile weaving in 1942 to take advantage of the War demand for increased textile production. They have not prospered in this industry since the end of the War and decided to liquidate the business and try their hand at manufacturing power-driven pumps and electric motors. A foundry and machine tools have been set up in the old weaving plant, in which some looms not yet sold were still to be seen. These entrepreneurs have hired an outside technician to set up the new enterprise and to train the workers in pump and motor manufacture, since neither of them has experience in that field. Production has begun with the casting of pump casings. Initial investment was approximately Rs. 75,000, and twenty workers were employed at the time the writer was visiting the firm, the number shortly to be expanded to about seventy.

Group 7. Entrepreneurs of Miscellaneous Backgrounds

The remaining ten of the fifty-two enterprises under study were established by men who do not fit into any of the entrepreneurial categories hitherto discussed. These entrepreneurs are an extremely varied group, ranging from former school teachers and white-collar workers to the sons of wealthy landlords or Brahman priests. This fact is in itself interesting, in that it indicates greater opportunity for entrance into manufacturing industry than is commonly supposed to exist in India. The firms found in the present group are as follows.

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[36] Cf. below, Group 7, p. 81.

Table 18

FIRMS ESTABLISHED BY ENTREPRENEURS OF MISCELLANEOUS BACKGROUNDS BY YEAR OF ESTABLISHMENT, EMPLOYMENT AND MAIN PRODUCT OR ACTIVITY

No. of firm	*Year estab.*	*Employment*[a]	*Main product or activity*
7	1926	89	Power-driven pumps
9	1935	87	Truck and bus body-building
12	1939	90	Electric motors
24	1946	250	Nut and plastic buttons
25	1947	114	Textile machinery parts; switch gears
32	1949	52	Tar boilers
39	1951	53	Structurals; carts and trailers
41	1951	58	Power-driven pumps
49	1956	75	Structurals
50	1956	60	Radios

[a] Average daily employment in addition to proprietors during 1956.

Two of these entrepreneurs are Brahmans (Firms 9 and 39), one is a Czechoslovak who has settled in India (Firm 24), and the rest are Naidus. Without going into too great detail concerning the origins of these firms, lest the present chapter grow unduly long, the following accounts will serve to fill out the picture of the way in which entrepreneurs find their way into the engineering-manufacturing industry.

One of the enterprises (Firm 7) was established by a land-owning cultivator family, and three others (Firms 25, 41 and 49) came into existence as the individual projects of the sons of such families. Initial capital for Firm 7 was provided by the family in question. The other three were financed by borrowing from relatives and other members of the Community. All were originally established on a small scale, and as repairers or producers of agricultural machinery.

Firm 25 has since shifted into the manufacture of electrical products. The founder of Firm 49, after a period of partnership in Firm 33, a structural workshop encountered in Group 1, reorganized his enterprise as a structural workshop also.

The remaining six entrepreneurs exhibit very varied backgrounds. The proprietor of Firm 9 was originally a teacher in a school which had given him a free education because his village family was too poor to pay tuition.[36] For some years he lived on a portion of his teacher's salary and eventually accumulated sufficient savings to purchase a second-hand bus, which he put into operation over a route near the school. By ploughing back all earnings, and investing additional savings, he gradually added buses until he had built up a fleet which became an important link in the local transportation system. Firm 9, now a truck and bus body-building plant, developed out of the repair shop eventually established for service of the owner's buses. It was maintained as a separate enterprise when the city eventually took over the bus line after the War.

The founder of Firm 12 is a businessman of many varied interests and activities, the chief of which is also operation of a bus transport company which he currently owns and manages. Firm 12 was established on a small scale in 1939 as one of the earliest, if not the first, electric-motor manufacturing plants in South India. The enterprise developed rapidly during the War, and a few years later was sold to two North Indian businessmen who are the present owners. The founder's most recent venture is Firm 50, a small unit for the production of radio-receiving sets. This firm is much more than a mere assembler of imported components, manufacturing all parts except the tubes. In this it much more resembles Firm 35 than Firm 38.

Firm 32 is unique in the entire sample in that it was financed, but is not owned, by a large engineering-trading company with branches in many parts of India. One of the specialities of this trading company is the import of road-repair equipment such as asphalt mixers and tar-burners. Shortly after the War the company decided to begin manufacture of tar-burners in India and set up a unit for their production. Because of constant labour trouble in recent years, the Firm decided to withdraw from manufacture and set up instead

[36] The "Horatio Alger" flavour of the account which follows might render it suspect, were it not for the fact that the writer was able to confirm it through officials of the school in question, a Jesuit College of South India.

small independent producers as suppliers. Four such establishments have been financed by the Company one of which is Firm 32. The proprietor, a friend of the branch manager of the trading company, was a technician in a textile mill but resigned that position to take charge of the new enterprise, which he now owns. The trading company provided machinery worth Rs. 27,000 to start the enterprise. Most of this has been paid back, so that the enterprise is now the property of the former mill technician. The large company provides the drawings and maintains a representative at the plant.[37] The branch manager of the trading company pointed out numerous advantages to the new set-up. His company has been relieved of "labour headaches." The domestically produced boilers have one-third longer life than those formerly imported. since the imported product was made of lighter steel in order to reduce transportation costs. In addition, the firm can buy boilers from Firm 32 at a price Rs. 800 less than the imported ones formerly cost. As a result, its competitive position has improved enormously. The former mill technician is also enthusiastic over the company's policy, inasmuch as he has been set up as a small independent manufacturer.

Firm 39 is a structural workshop now rapidly diversifying into the field of cart and trailer manufacture. Its founder is the holder of a college commerce degree. His first experience with engineering industry was as a salesman for a contracting firm in Madras, a position he obtained upon graduation from college in the late 1930's. Early in the War he left this firm to start a small contracting firm of his own, specializing in the field of building construction. When the War boom came to an end he returned to Coimbatore, and together with his two brothers established a small structural workshop. The firm has prospered due to the mill expansion in that area. It is now diversifying its production considerably as will be described in Chapter VI.

Firm 24, a button manufacturing enterprise and the last in the present category, deserves fuller treatment, since the story of its founding is the story of the establishment of a new factory industry in South India. Before its establishment button production in the area was exclusively on a cottage industry basis.

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[37] The burners used with the tar-boilers are now manufactured in the trading company's own Bombay workshop. This is considered the "secret part" of the apparatus, and the company will not let the drawings out.

The founder of this concern is a Czechoslovak, now a naturalized Indian citizen, who came to India in the middle 1930's as a representative of a large Czech shoe company. After a few years in India he decided, with two Czech friends, to go into business for himself. Button manufacture was selected as a good prospect, and in 1939 a small factory was set up in Lahore, now part of Pakistan, the initial capital of Rs. 30,000 being put up by several Muslim businessmen. The outbreak of War and resulting demand for buttons for army uniforms immediately put the business on its feet. The need of the armed forces also helped the firm get speedy delivery on imported machinery, needed for expansion. Profits were large (200 per cent over cost) and expansion was rapid. But the War also brought serious raw material problems. It was not long before imports of dum nuts from the Sudan in Africa, the chief raw material, were almost completely cut off because of shortage of shipping space. As a substitute the firm turned to the use of palm seeds from Malabar (an idea taken over from another Czech firm which had been experimenting along these lines), and when the supply of these seeds began to run short, to coconut shells, also from Malabar. The problem now was one of transportation of the shells from the extreme south of India to Lahore, at a time when the Railways were already grievously over-burdened. Shipment by boat was tried but did not solve the problem, and the firm finally decided to open a branch in Cochin. Here the coconut shells were processed and sent North for finishing.

When the War ended and dum nuts from Africa once more became available, the question arose as to what to do with the Cochin branch. The proprietor of Firm 34 decided to withdraw from partnership in the Lahore concern and take over the Cochin branch as part of his share of the company. His friends thought that this decision was very foolish, since the market for buttons was at that time almost exclusively in North India, where the weather is cold for five months of the year. He believed, however, that there was a sufficiently large market in the South for the small-scale operation he planned. He estimated, furthermore, that he could bring dum nuts by ship from Africa to Cochin at one-third the cost involved in bringing them in at Bombay and transporting them by Railway to a northern location. The saving in transport costs would enable him to compete in northern markets.

This proprietor's first move after taking over the Cochin branch was to re-locate the enterprise near Coimbatore. One reason for this, he said, was to escape the "tough atmosphere" of the port city. Another was the greater availability of skilled labour in the new location. The new enterprise was launched on a small scale in 1946 with an investment of about Rs. 35,000 and a work-force of approximately 70 workers during the first year. Almost all profits, which have been good, have been ploughed back since its establishment, and the firm now represents an investment of Rs. 4,00,000 net of depreciation with a work-force numbering two hundred and fifty.

When Firm 24 began operations, the button market in South India was very small. Some nut buttons were being produced on a cottage basis, but the fastener most widely used was the wooden stud, also produced on a cottage industry basis. In the early days of the firm's operations the market was able to absorb only 5,000 buttons a month. The market has widened steadily, however, and Firm 24 now sells 50,000 buttons a month in the South alone and an approximately equal amount in the North. Other producers have also entered the field, notably Firm 37.

As mentioned earlier, there have been important developments in the button industry in India since 1950, the chief of which has been the virtual elimination of the nut button by plastic varieties. In 1950 the factory sector of the nut button industry in India produced an estimated 2·3 million gross nut buttons, while plastic button production was nil. In 1956, 2·2 million gross plastic buttons were produced, and nut button production in the factory sector had almost completely died out.[38] The effects of this development on both Firms 24 and 37 are discussed in Chapter VI.

ANALYSIS OF THE DATA

Entrepreneurs' Background

THE most striking point which emerges from the preceding case-studies is the extremely varied background of the entrepreneurs who have organized the enterprises under study. It is evident that entry into industry is open to persons of very different social standing and economic position. This finding is somewhat unexpected in one of the less developed regions of a country where traditional occupation and caste play an important part in determining economic status and are generally supposed to be a main factor inhibiting the emergence of entrepreneurs. Only four of the entrepreneurs encountered can be said to be still in direct line with the traditional (in the sense of caste-assigned) family occupation. They are the proprietors of the three oldest firms (Firms 1, 2 and 3), all of whom are Naickers, a community whose traditional occupation in the area has, in modern times, been foundry work. The fourth is the proprietor of Firm 33, an Asari, an artisan-blacksmith caste very similar to the Naickers.[39] Firm 33, however, bears little resemblance to the blacksmith shop it once was, being now a structural steel fabricating workshop. The remaining entrepreneurs in the sample represent a clearly defined break with the family tradition.[40] The Brahmans in the group represent the sharpest break with the past, since teaching and the professions rather than business and industry have been their traditional sphere of activity. On the other hand, shift into industry has perhaps been facilitated for them by the fact that they have never been rigidly tied, at least in modern times, to one activity like some of the artisan and cultivator castes. The careers of some of the workmen-entrepreneurs illustrate how the growth of an industry loosens the social fabric. The appearance of factories in the area enabled these men to leave their village occupations and eventually make the transition to industry although members of a cultivator caste. The findings suggest that the emergence of industrial entrepreneurs in modern India is more directly conditioned by economic than by social factors. Access to capital, possession of business experience, and the opportunity to acquire technical training—the usual determinants in other countries—appear to be far more important than purely social factors such as caste, tradition and social approval and disapproval. The prevailing social structure, however, obviously has a profound influence in determining who amasses capital and obtains business and technical knowledge.

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[38] *Directory of Plastics Manufacturers and Exporters*, 1957 (Bombay: Popular Plastics, 1957), p. 34.

Another unexpected finding is the fact that only a minority of the entrepreneurs have had a trading background. The opinion is widespread in India that merchants, being men in possession of capital, have established most of the medium-scale industrial units which have appeared since the War. If that is true elsewhere in India, it is not true of the area studied, at least as far as the engineering industry is concerned. Only fifteen, or less than one-third of the firms investigated, were founded by merchants engaged in domestic trade or by importers. These men constitute the largest single occupational group encountered, however.

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[39] For a description of these social groups see above, p. 44.

[40] There is often a logical development between the industry entered and former economic activities, as pointed out in the case-studies. But entrance into the industrial field itself represents a departure from family traditions.

In this respect the region studied conforms to what is now known of the origins of industrial enterprise elsewhere in the world. It is now known, contrary to a view long held, that the medieval and early modern European merchant is by no means the sole ancestor of the modern industrialist. On the contrary, all important occupational groups have contributed entrepreneurial talent to industrial development.[41]

A similar pattern of entrepreneurship has been observed in the early development of the iron industry in South Wales. As long as the industry was small, local landlords and artisans predominated. Of seven persons who are known to have held entrepreneurial positions in the Welsh iron industry in 1723, four were landowners, one a merchant and two ironmasters. As the industry developed, merchants from the old commercial centres were attracted to it. Of twenty-five persons in entrepreneurial positions in 1788, nine were merchants, thirteen ironmasters, two entrepreneurs in other industries and one a manager in an iron works. The occupational pattern found in 1788 remained fairly stable throughout the rest of the eighteenth and first half of the nineteenth century. Half of the entrepreneurs during that period were merchants, while the rest started as engineers, small masters or managers in the iron industry or related industries such as copper, brass, tin plate manufacture or engineering.[42]

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[41] Redlich, "Entrepreneurship in the Initial Stages of Industrialization," p. 65. He points out, however, that no other single occupational group had as large a share as the merchants in the modern industrialist's ancestry. The proposition is demonstrated for Germany, pp. 65–71. Redlich thinks it probable that craftsmen were the second most important group prior to World War I, including in the term "new-line craftsmen" such as mechanics, electricians, etc. as well as "old-line craftsmen" such as weavers, dyers, lock-smiths, etc.

[42] Bert F. Hoselitz, "Entrepreneurship and Capital Formation in France and Britain since 1700," in *Capital Formation and Economic Growth*, p. 324. The data are from an unpublished paper, "The Geographical and Occupational Origin of South Wales Iron-masters, 1717–1839," by Marshall Kolin.

These findings, in conjunction with those of the present study, suggest that in the very early stage of industrial development the entrepreneurial function in the engineering industries is performed mainly by local persons of widely varied backgrounds, including landlords, artisans and other occupational groups. Merchants apparently begin to play an important role only at a later stage of development. They constitute a "second wave" of entrepreneurs, attracted to the industry by the early successes of the pioneers.

Entrepreneurship appears to be developing according to this pattern in the engineering industry of South India. While the background of entrepreneurs has thus far been extremely varied, domestic merchants and importers have been assuming an increasingly important role in more recent years. Not only have more persons of trading background been entering the industry but they tend to start their enterprises on a larger scale than other entrepreneurs, a fact which is particularly characteristic of importers.[43] Hoselitz points out that it was only when merchants were attracted to the Welsh iron industry that the industry started its period of rapid growth.[44] Present findings indicate that the light engineering industry of Madras State may be on the threshold of such a "take-off point."

It is interesting to speculate how the influx of a large number of merchants, if it should develop, will affect the pattern of entrepreneurship in the future. It seems probable that such a development will make it increasingly difficult to launch an enterprise on a financial and technical shoe-string. New enterprises will have to compete with the larger, better-equipped establishments owned by men in possession of considerable amounts of capital, which will make it harder for the small artisan and ex-factory workman to break into the ranks of the industrial entrepreneurs. It is to be expected, accordingly, that freedom of entry which has characterized the industry thus far will diminish as time goes on.

A second interesting point which emerges is that entry into any particular industry is open to men of very different business experience and technical background. Merchants, former factory workmen, highly trained engineers and white-collar workers are found side by side in several of the industries studied. Conversely, entrepreneurs of similar background show considerable versatility with regard to the industries they have entered. These facts are brought out in the following table.

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[43] See below, Table 30, p. 147.

[44] Hoselitz, "Entrepreneurship and Capital Formation. . . ," p. 324.

Table 19

DISTRIBUTION OF ENTREPRENEURS BY INDUSTRY GROUPS (NUMBER OF ENTERPRISES)

	Industry group						
Entrepreneurial category	*Agri-cul. mach.*	*Structurals*	*Textile mach.*	*Electricals*	*Misc. producer goods*	*Consumer goods*	*Total*
Rural Artisans	3	2					5
Merchants and Importers	3	1	1	2	3	5	15
Former Factory Workmen	3	1			2		6
Engineers	3	2	2	2	2	1	12
Manufacturers	2					2	4
Miscellaneous	2	2		2	2	2	10
TOTAL	16	8	3	6	9	10	52

There is little tendency for entrepreneurs of similar background to enter particular industries, except for rural artisans, who have congregated in the agricultural machinery and structural industries, and merchants and importers, one-third of whom have entered consumer goods industries.

The most versatile of the entrepreneurs encountered are the merchants (including importers for present purposes), and the engineers. Each of these groups has at least one representative in each industry category. So far as the merchants are concerned, this versatility probably lies in the fact that they possess wider business experience than others and consequently greater skill in detecting opportunities for profitable business ventures, as well as capital at hand to exploit them. As regards the engineers, the range of possibilities open to them is much greater, because of their technical training, than those open to a former factory workman, for example, who knows only one line of work.

The very "democratic" aspect of entry into the engineering field which the data reveal calls for some explanation, since it is said to be not characteristic of most branches of Indian industry.[45] The general tendency has been for entrepreneurs in a particular industry to come from a similar economic and social background. Thus the silk weaving industry in Bombay is in the hands of men who were traditionally silk merchants, the only exceptions being a few tailors who managed to accumulate enough capital to start a weaving establishment.[46] In the Coimbatore area, the Naidu textile mill owners have come from the ranks of cotton growers and merchants.

Why, then, is entry into the engineering-manufacturing field open to entrepreneurs of such varied background and with such very different amounts of capital at their disposal? The main reasons are the following:

(1) It is possible for an entrepreneur to enter an engineering industry on a very small scale. Of the fifty-two firms studied, forty-four began as small-scale enterprises as defined earlier. Of these forty-four units, thirty-four employed fewer than twenty-five workers during their first year of operation, and eighteen fewer than fifteen workers. In terms of initial capital, only six of the fifty-two firms began with Rs. 1,00,000 or more; eleven with capital of Rs. 50,000 to Rs. 99,999; twelve with Rs. 25,000 to 49,999; and at least thirteen with less than Rs. 25,000.[47] The case-studies reveal that many of these firms began as very small repair and odd-job shops.

(2) Growth of small engineering workshops can take place gradually and by small increments, by adding machines such as lathes, drills, planing machines, and similar equipment as capital becomes available out of earnings or from small borrowings from relatives and friends. The enterprise can grow without the entrepreneur having a large amount of capital at his disposal at any one time. Thus it becomes possible for a very small shop to develop into a medium-scale manufacturing enterprise from extremely humble beginnings.[48]

[45] The authority for this statement is a study soon to be published, *The Rise of Modern Industry in India* by D. R. Gadgil and M. V. Namjoshi of the Gokhale Institute of Politics and Economics, Poona. The writer had the opportunity of discussing the point in question with Dr. Namjoshi.

[46] *Ibid.*

[47] To these last thirteen firms should almost certainly be added at least five of the ten prewar firms for which actual figures of initial investment were not available, but which certainly began on a very small scale.

[48] Patterns of growth of the fifty-two firms studied, and the methods by which they have financed their development are treated in detail in Chapter v. It will

(3) Surprising as it may seem, it is not necessary that an entrepreneur in the engineering field be personally in possession of skill, training or experience in engineering. Thirty-one of the firms studied were established by men with such training or experience,[49] but some of the remaining twenty-one are among the most successful and prosperous in the sample. Among the latter are firms established by merchants with no personal experience in the engineering field. In general, however, because of the shortage of qualified technicians in under-developed countries, it is an advantage for an entrepreneur to be skilled in some branch of engineering. Good technicians are difficult to find and hard to retain, particularly by small firms. On the other hand, an entrepreneur without personal technical qualifications who succeeds in hiring a capable technician may have great advantages over an artisan or former workman who insists on doing his own engineering and who may be inclined to overestimate the value of his "practical engineering" training.

(4) In an under-developed country, buyers, generally speaking, are not quality-conscious, nor in a position to judge the relative merits of different manufacturers' products. A small producer with little technical competence can thus succeed in marketing his product, even during the period when he is acquiring experience and skill in manufacture. As a result, a smaller amount of initial capital is needed than would be required if it were first necessary to develop a high quality product before beginning production on a commercial scale. It is obvious, however, that this situation will change as economic development gathers momentum. There are numerous indications that quality-consciousness on the part of buyers is increasing in the area studied. This development has aggravated the technical problems of entrepreneurs and can be expected to make entry into the field more difficult as time goes on.

These are the main factors accounting for ease of entry into the light engineering-manufacturing field. In view of this ease of entry, coupled with rising demand for the products of these industries, it is somewhat surprising that no more merchants are found among the entrepreneurs encountered. Merchants are men traditionally

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be seen that many of the firms, including some with the smallest beginnings, have grown discontinuously rather than by the slow gradual process suggested here. More than half, however, have grown slowly, by small increments.

[49] These are the firms established by artisans, former workmen, and engineers and Firms 7, 12, 29, 32, 39, 49 and 50.

on the lookout for profitable business opportunities. In particular, why have not more dealers in machinery and other engineering goods entered the field of manufacture, thus paralleling developments in other branches of Indian industry to a closer extent?

The reason appears to be that this branch of commerce in India is dominated by large firms, many of them originally foreign-established, doing widespread business throughout the country. These firms, moreover, have traditionally been importers of foreign-made engineering goods, although many of them now deal in Indian-made machinery and parts as well. They would have to enter manufacturing on a large scale if they were to find the venture profitable and commensurate with their present scale of trading activities. They are unwilling to do that, judging from conversations which the writer had with representatives of four large trading companies operating in South India. The experience of these firms lies wholly in the field of importing and trading, activities in which they have been long engaged, and manufacture is viewed as an unfamiliar and risky venture. Two main reasons were given for their reluctance to begin manufacturing: the technical difficulties of producing high-quality engineering goods within the country, and the uncertain labour situation. One of the companies, as seen when discussing the origins of Firm 32,[50] began manufacturing but withdrew from the field because of labour troubles. It has found it more advantageous to finance four small manufacturers instead.[51] A different pattern of trading in the engineering field might perhaps have attracted a higher percentage of merchants into manufacturing, thus making for a less varied pattern of entrepreneurial background than was in fact encountered.

The surprising amount of freedom of entry discovered suggests that the light engineering-manufacturing industries are a particularly fruitful source of the industrial entrepreneurs so badly needed in under-developed countries. These industries should be viewed as a kind of "school of entrepreneurship" whose entrance requirements are not stringent and in which merchants, cultivators, factory-workers and other would-be industrialists can make the transition to industry more easily than in other sectors of the economy. This fact gives the industries in question an importance far in excess of their contribution to output and employment. They are a strategic training-ground for first-generation entrepreneurs whose efforts to get firmly established in industry should be assisted in every way possible.

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[50] See above, Chapter III, Group 7, pp. 80-1.

[51] There is evidence, however, that the situation is changing, and that more trading companies will move toward manufacture. One Indian-established concern in Madras has been branching out into manufacture of such products as wood screws and automobile parts, and one of the four companies just mentioned recently began the manufacture in India of air-conditioners for home and office use. Restrictive import policy is chiefly responsible for these developments. The feeling is growing that companies engaged exclusively in importing are at best merely tolerated, and that their future is uncertain unless they add some manufacture to their activities.

Sources of Initial Capital

Like the background of the entrepreneurs, the sources from which they have secured the initial capital for the establishment of their enterprises are also quite varied. This fact is brought out in Table 20.

The most striking fact revealed by this break-down is the very heavy dependence of would-be entrepreneurs on personal or family funds for initial financing. Only five of the firms whose source of initial capital could be ascertained raised capital by selling shares to outsiders, and only eight reported loans as a principal source of initial capital.[52] Of these eight, only two secured bank loans, the rest borrowing from relatives and close friends. Both of the entrepreneurs who borrowed from banks already had well-established businesses. One of these (Firm 29) had been long in the jewelry business, and the other (Firm 36) was an importer and dealer in radios. These bank loans were reported as short-term renewable loans, chiefly for the purpose of working capital, fixed capital being financed mainly out of the earnings of the other business.

Seven of the twelve firms financed through profits of manufacturing obtained initial capital from earnings of firms which are themselves among the fifty-two firms in the sample.[53] This finance

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[52] Many others reported that small borrowings, usually from friends and relatives, were a supplementary source, however.

[53] The seven firms, together with the enterprise which was their source of capital are as follows: No. 3 (from No. 2); Nos. 11 and 20 (both from No. 5); No. 37 (from No. 18); No. 47 (from No. 17); No. 49 (from No. 33); and No. 52 (from No. 36).

Table 20

DISTRIBUTION OF FIRMS BY PRINCIPAL SOURCE OF INITIAL CAPITAL[a]

Source	*No. of firms*[b]	*Individual firms (by number)*
Revenue from property or business owned by the founder:		
		FIRMS
(*a*) Revenue from land	6	5, 7, 36, 41, 48, 51
(*b*) Profits of trading	13	4, 8, 13, 14, 21, 28, 34, 35, 38, 42, 44, 45, 46
(*c*) Profits from manufacturing	12	3, 11, 16, 20, 23, 24, 27, 29, 37, 47, 49, 52
(*d*) Profits from other business	4	9, 12, 39, 50
2. Personal savings from wages	7	15, 17, 18, 30, 31, 32, 40
3. Sales of shares	5	24, 28, 29, 37, 43
4. Borrowing	8	8, 15, 17, 19, 29, 31, 35, 40
5. Unascertainable	8	1, 2, 6, 10, 22, 25, 26, 35

[a] Initial capital is defined as funds at the disposal of the entrepreneur for the establishment of the enterprise in the first instance, even though the firm may have been founded merely as a repair and odd-job shop and not a manufacturing enterprise properly so called.

[b] Adds up to more than fifty-two because of presence of several firms in more than one category.

was provided through the mechanism of withdrawal of partners from existing enterprises, division of joint-family property and establishment of second manufacturing units by some of the entrepreneurs in the group. Of the remaining five firms whose source of initial capital is manufacturing, one was financed through the earnings of a textile mill, two through agricultural processing, one through earnings of a button factory, and one through profits of a jewelry business.

In general, the data indicate that in the area studied capital is not flowing in any appreciable amount from other branches of manufacturing industry into the light engineering industries. But a reverse flow from engineering into other branches of manufacture is already beginning to appear. While the writer was visiting their firms, the proprietors of both Firms 6 and 22 were engaged in setting up textile mills, reportedly financed mainly out of the earnings of their engineering establishments. The proprietor of Firm 43 reported plans for the construction, in the near future, of an office building, part of which he will use for his own offices and lease out the remainder as a real estate investment.

The difficulty of raising initial capital is, of course, the main determinant of the scale on which the firms studied have been launched. As noted above, this scale has been very small. The reason almost invariably given for the initial size of the establishment was lack of additional capital, only a few firms reporting that they deliberately wished to begin small in order to minimize risk when entering a new and unfamiliar field of activity. Rural artisans and former factory workmen, who, as is to be expected, have less access to capital than merchants or others with an already established business, have launched their enterprises on a smaller scale than the latter.

Problems Encountered in Getting Established

One of the objects of the study was to obtain information on how founders of small- and medium-scale engineering firms reach a decision regarding location of their plants and what problems they encounter in getting established. The present section summarizes the main findings on these points.

Concerning choice of location, it was made abundantly clear in the course of the interviews that, as regards the general area of location, choice in the overwhelming majority of cases was determined by the mere fact that it was the area where the proprietor happened to be living, or where he had an already established business. Six entrepreneurs, however, reported that they deliberately chose the area of location for reasons of an economic nature. These were Firms 4, 8, 10, 20, 24 and 34. Of these six firms, all except Firm 24 were motivated by market considerations. Two of them (Firms 8 and 34) deliberately moved into the area because there was not yet any factory manufacturing the product they intended to produce. Firm 24, a button manufacturing establishment, moved from Cochin, where it had been established during the War for the purpose of tapping a temporary source of raw material, to its present location near Coimbatore in order to seek a "less rough" and more skilled type of worker than was available in the port city.

Once the general area of location was determined, the firms gravitated toward the city because of the presence there of power lines, railway connections, and, a very important consideration, the availability of skilled labour. The last-named factor looms large in the minds of all new entrepreneurs entering the engineering field. The first problem every new firm faces in getting established is finding certain key personnel such as an experienced foundryman, a pattern-maker, a chief fitter and a machine-shop foreman, without whom operations cannot begin. The role of these men in the new plant is more important than the term "skilled labour" usually connotes. They are in reality the technicians of the new establishment and the chief source of its technical "know-how." Small establishments of the type under consideration cannot afford to hire a trained engineer to handle the technical side of operations, even if such men were available. Hence, the proprietor must rely on his own technical knowledge, which in most cases is severely limited, supplemented by that of his key employees. It is frequently the latter who are the real "engineers" in the plant, even though one of the partners, or a relative, almost always holds the title of works manager or chief technician.

Such an organization may be adequate while a firm is very small and competition negligible. But as it grows in size it must expand its market and compete with other producers. Quality of product must eventually be improved, and new lines of activity may have to be developed as circumstances change. The technical competence of the original staff is likely to become inadequate as time goes on. Developments are following this course in the area studied and the writer found entrepreneurs doing a great deal of worrying about how to improve the technical side of their operations.

The day is rapidly passing, if it has not already passed, when these firms could sell almost anything they turned out regardless of its quality, and competition is much greater than it was a few years ago. The presence of a sizable group of graduate engineers among the entrepreneurs in the industry has done much to bring about the changed situation. They have raised the standards and others are now forced to keep pace. Thus a kind of "technological chain-reaction" has been set in motion by the engineers. Most of their less-qualified confreres are acutely aware of the need of raising their own technical standards but are at a loss as to how to go about it. Some are trying to remedy their own deficient knowledge by studying technical books privately, and the writer received a number of requests for information regarding latest publications in various fields of engineering and possible arrangements with American firms for technical assistance. At least two of the entrepreneurs had relatives studying engineering preparatory to coming into the firm as chief technicians. Only the three largest firms in the sample have reached the point where they employ trained engineers from outside the firm.

Without any doubt, one of the areas in which the firms studied need help most urgently is in the area of technical assistance. In the writer's opinion, this is a more urgent need at the present time than capital assistance, and much greater emphasis must be placed on the provision of technical assistance in future policy aimed at strengthening medium-scale enterprises.

The "pool of skilled labour" which attracts new enterprises to a particular locality consists of workers already employed by other engineering firms in the area. This fact makes no difference to the new enterprise, the usual procedure being to hire away from some established firm the key personnel needed to get under way. Such a practice compounds the technical difficulties of the established enterprises. Firm 24, for instance, was greatly inconvenienced by the loss to Firm 37, when the latter was established, of a technician highly skilled in the operation of automatic presses and trained at considerable cost by his former employer.[54] In general, however, entrepreneurs are philosophical about the loss of trained men to new firms. "After all," more than one of them said, "we all got started the same way."

Even if the presence of power lines and railway facilities did not cause engineering firms to locate near one another, the fact that the skilled workers they need to get started are already employed by other firms in the area would do so. The farther away the new firm locates, the greater difficulty it will have in attracting workers away from their present employer. The writer, in the course of his investigations, met the owner of a newly established textile mill for whom supply of skilled workers had become a grave problem. A town fifteen miles from Coimbatore had been chosen as the site of the mill. Although it had been in operation for only a few months, the proprietor had already come to the conclusion that he had made a serious mistake. All his skilled workers had been drawn from other mills in Coimbatore. Besides having to pay them extra money for travel to and from the city, he reported that absenteeism was much higher than it normally should have been, with serious detriment to production.[55] These considerations point up the difficulties facing any programme aimed at decentralizing industry in an under-developed country, even where small- and medium-size enterprises are concerned.

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[54] In this case the loss was only temporary. After working for Firm 37 for a year, during which time he trained an assistant, the technician was discharged, apparently so that the assistant could take over at a lower salary. The technician, in turn, was re-employed by Firm 24 at a reduced salary. Another proprietor, not included in the sample, told the writer that he was not averse to his workers seeking employment with new firms starting up, as they often came back to him "more satisfied and for smaller pay."

Apart from the key personnel, the general policy of the firms studied is to hire "raw hands," that is village boys with no previous factory experience, and train them in the plant. Only three firms reported that they prefer to hire workers with previous factory experience. The policy of in-plant training is motivated chiefly by the belief that such workers are more easily disciplined and less likely to "cause trouble." This reason was expressly given by many of the entrepreneurs interviewed. Behind the policy lies the fear that if a worker has had previous factory experience he may have learned too much about labour unions and methods of agitation, and he may pass this knowledge on to his fellow workers, resulting in "trouble" in the plant. Some firms in the Coimbatore area stated that apart from personal preference they were forced to hire and train raw hands because Firm 22 absorbed all experienced workers and those with industrial school training. None of the firms reported using Employment Exchange facilities, since all the workers they needed "come right to the factory door" looking for work, or can be obtained through workers already employed.

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[55] This proprietor's original motive in moving away from the city was the hope that he would thereby avoid the labour troubles which plague the central mill area. One of the firms of the present sample (Firm 37) relocated out in the country for the same reason when building its new plant. This firm has not experienced the same difficulties as the textile mill just mentioned, probably because it already had a skilled working force dependent upon it for employment. It has, however, had a great deal of labour trouble, caused chiefly by its policy of retrenching workers consequent upon the introduction of automatic machinery. For details, see below, Chapter VI, Consumer-Goods Industries, pp. 203–4.

This policy of training raw hands admittedly causes much difficulty and expense in terms of quality of output, damaged tools, etc. On balance, however, employers definitely feel that it is a safer policy than hiring workers with previous factory experience, who besides being potential "trouble-makers" may be used to methods of work not suitable to the new establishment. All seemed agreed that it is easier to train a new inexperienced worker than to re-train an experienced one used to different methods.

In the matter of training workers, the graduate engineers have decided advantages over the other entrepreneurs. Because of their broader technical knowledge, they can personally supervise the training of workers and do so. Thus, they have an opportunity to become better acquainted with workers and to establish better labour relations than other entrepreneurs. As a group, the engineer-entrepreneurs reported fewer difficulties in training workers than other entrepreneurs. Several reported that they were able to take boys fresh from rural villages where they had never worked with any kind of machinery and have them "operating lathes and reading micrometres" in six or eight weeks. They also reported a great eagerness on the part of such boys to learn these things, with the result that they had no difficulty in obtaining a sufficient number of apprentices. Almost all the establishments investigated had some boys employed as learning apprentices.

Several entrepreneurs reported that village boys can be taught without much difficulty to operate latest model "push-button" lathes as easily as the older manually operated type, so far as technical aspects of operation are concerned, but it is much harder to interest them in the former. They quickly grow bored with the newer type machines and "go wandering around the plant." One of the entrepreneurs in question (the managing partner of Firm 22) reported that he gets higher productivity on his manually operated lathes than on the automatic types and as a result has equipped his machine shop chiefly with the former. Why workers should react thus is not clear. It may be that "push-button" operation seems very dull and uninteresting to country boys used to working with their hands, or possibly they think that the machine should do the rest of the work without their help, as long as it can do so much of it. This situation exemplifies the need of adapting production techniques to the particular conditions of underdeveloped countries.

Another major difficulty of the firms studied was initial shortage of working capital. It takes time for a new enterprise to establish itself in the market, and a new firm must generally operate at a loss for at least the first year or two and sometimes longer. Liberal terms of payment must be allowed to customers to build up good will. Payment for sales to Government is often delayed for months. The raw material shortage aggravates the situation since the entrepreneur must purchase as much material as he can when the opportunity presents itself, which often means laying out more money than may be convenient.[56] These conditions increase the amount of working capital needed during the first few years of operation. Proprietors who have another already established business or land yielding revenues have distinct advantages over others, since they can channel earnings into the new enterprise. In addition, bank credit may be available to these entrepreneurs, since they have an already established business and business connections. Newcomers are forced to rely on personal savings or small borrowings from friends and relatives. They reported that shortage of working capital was a major problem in establishing their enterprises. The recently inaugurated State Bank Pilot Project to provide working capital[57] promises to be a real boon to new entrepreneurs, if the programme is administered liberally and if the raw material situation eases.

These three problems—finding technicians and skilled workers, training ordinary labour, and shortage of working capital—are the major ones encountered by new enterprises and are common in varying degrees to all the firms studied. In addition, there is the general problem encountered by all new enterprises of finding customers and getting firmly established in the market. Community connections can be of great help in this regard. Many firms, especially those which began on a very small scale as repair and odd-job shops, reported that they were substantially helped in the beginning by being able to sell their products to or do repair work for members of their Community. At least one entrepreneur in the Coimbatore area, himself not a Naidu, found that having a Naidu partner enabled him to get more business from the Naidu millowners of the region. For firms established during the past few years, particularly in the fields of pump manufacture and structural work, the problem of getting an initial market has been much simplified by the "sellers' markets" in which they are operating.

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[56] See below, p. 104–5. [57] See below, pp. 141–3.

Two groups of entrepreneurs have advantages over the others in solving initial marketing problems. They are the engineers, whose higher quality product enables them to contract with the large trading firms for the marketing of their output; and the merchants, who are experienced in commerce, and can and commonly do use their existing marketing organization to distribute their products.

Because of the great demand since the War for engineering goods of all types, competition from existing firms has not been a major problem for new firms entering these industries. There are some exceptions to this general rule, of which the prime example is Firm 29, which suffered greatly from competition from a large established firm during the first years of its existence. The way in which the problem was met is discussed below.[58]

A number of other problems connected with establishment were reported, such as difficulty of obtaining power, controversies with Factory Inspectors regarding spacing of machinery, provision of sanitary facilities for workers, and similar matters. These problems were peculiar to individual firms, or particular locations chosen, however, and no conclusions of general interest can be drawn from them.

Before concluding the discussion of problems of new enterprises attention should be called to the marked tendency toward "self-sufficiency" on the part of even the smallest engineering unit. A visitor to the firms studied is immediately struck by the fact, for instance, that each small manufacturer has his own foundry complete with cupola, even though it be of only one-half ton capacity and used for casting only every ten days, lying idle the rest of the time. Such installation of excess capacity when the firm is set up is a needless waste of resources from the viewpoint of the community. A more efficient and rational organization of industry would include one or a few firms in an area specializing in casting on order for local manufacturers. Thus, the number of foundries needed could be reduced and existing ones utilized to full capacity.

There are, however, understandable reasons for the present situation. Until recently, light engineering industry in the region was not sufficiently developed to make it worthwhile for anyone to specialize in casting only. The first firms to appear, accordingly, had to provide their own foundry facilities. As each new firm appeared it had two choices: either to instal a foundry like its predecessors, or become dependent on an existing manufacturer for castings. Since no new entrepreneur wants to become dependent on an actual or potential competitor, he installs a foundry of his own.

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[58] See Chapter VI, Consumer Goods Industries, pp. 199–200.

The type of specialization according to which one or a few firms specialize in casting for others clearly belongs to a later stage of industrial development than that reached by the firms studied. That stage is now being approached in the area investigated, however. Firm 15, which began life as an automobile repair shop and small parts manufacturer, originally had no foundry but soon established one to escape dependence on others.[59] The firm now specializes in rough castings only on order for other firms in the Madras area. The feasibility of setting up such a foundry, perhaps by Government, in areas where small engineering industry is developing should be investigated. Such a plant would relieve new enterprises of the necessity of installing their own cupolas, and would, in turn, reduce the capital needed by new entrepreneurs entering the engineering field.

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[59] This proprietor, an engineer, pointed out other drawbacks to dependence on others for casting, apart from the general insecurity which a firm then faces. Before he had his own foundry, he said, he frequently had to wait while the foundry owner on whom he depended went ahead with his own work first. Less interest is shown in the quality of workmanship, too, when the work is for an outside firm.

CHAPTER IV

OPERATIONAL PROBLEMS OF ENTREPRENEURS

BEFORE ANALYSING the subsequent growth of the firms under study, it will be well to review the main problems which entrepreneurs face in their efforts to develop the enterprises they have established. Their achievements in this respect serve to complete the picture of the economic environment presented in Chapter II. Additional light is also thrown on problems of industrialization in under-developed countries.

The main problems faced by entrepreneurs can be grouped under four headings: (1) raw material problems; (2) employer-employee relations; (3) other labour problems; and (4) the problem of working capital.

Shortage of Raw Materials

One of the most serious problems with which entrepreneurs must contend is the acute shortage of most of the raw materials needed in the engineering-manufacturing industries. The situation has been particularly bad in the case of the major materials needed by firms operating in the producer goods industries, namely pig iron, coke and scrap for foundries; mild steel bars, sheets and other steel shapes for fabrication purposes; and such auxiliary materials as nuts, bolts and ball-bearings.[1] Firms in consumer goods industries reported, as a group, considerably fewer troubles in the matter of raw material procurement, except in a few cases where special materials are needed, such as imported stainless steel, or special types of wire, or electrical equipment.

The shortages experienced by the enterprises under study were chiefly due to the general shortage of industrial raw materials throughout the country, brought about by the greatly heightened tempo of industrial activity in connection with the Second Five Year Plan. Because of the general shortage, particularly of iron and steel, the Central Government rations available supplies among the various states of the Indian Union, who then allocate them to actual users under a quota system, based on amounts used in the past, at controlled prices. None of the firms investigated had been granted a quota which even approximated its needs, and few were able to secure from dealers the full amount authorized. The following figures for ten firms who are members of the Southern India Engineering Manufacturers' Association illustrate the situation in the area.

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[1] The position in pig iron is reported to have improved in 1959 consequent upon launching of production in the new public sector iron and steel mills at Bhilai and Rourkela, and expansion in private sector production.

Even allowing for some over-statement of needs in applications for quotas, it is evident that amounts received fell far short of requirements. The same is true of coke, a primary raw material for use in foundries. Of the 1,300 tons of coke allotted to them during 1956, these ten firms were able to obtain only 764 tons from local stockists.

Table 21

ALLOTMENTS OF PIG IRON TO MEMBER FIRMS OF THE SOUTHERN INDIA ENGINEERING MANUFACTURERS' ASSOCIATION, 1954–56

(In tons)

Year	*Amount applied for*	*Amount allotted*	*Amount actually received*
1954	5,880	2,937	2,737
1955	5,840	1,709	1,820[a]
1956[b]	7,335	2,468	364

SOURCE: Southern India Engineering Manufacturers' Association, Jail Road, Coimbatore, S. India.

[a] includes receipts against previous allotments.

[b] to August 1956.

Of the coke obtained, 686 tons were bee-hive coke and only 78 tons by-product hard coke.[2]

Many of the firms visited were in an even worse position with regard to raw material supply than the enterprises just discussed. One entrepreneur reported that his allotment of pig iron by state authorities was three tons a quarter, a quantity which he often used in a single casting. Another firm was within a few days of shutting down operations for a time, shortly before the writer's visit, when the proprietor learned by chance of the existence of eighty tons of scrapped iron pipe in Vizagapatnam, several hundred miles away. He was able to obtain this through the help of a large foreign concern for whom he does sub-contracting, the large firm providing the finance so that its orders would not be delayed. It is through such purchases of scrap in the open market that firms attempt to make up the deficit in the amounts they are able to secure under official allotment. There is also said to be an extensive black market in iron and steel of all types, at prices much higher than the controlled prices. Scrap is very scarce in the area, and the resulting scramble and constant search for it cost entrepreneurs much time and trouble.

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[2] Data supplied by the Southern India Engineering Manufacturers' Association.

Acute scarcity is not the only problem faced by firms in the matter of basic raw materials. Quality is also the source of many complaints and headaches. Pig iron is often improperly graded and of inferior quality and frequently results in harder castings than are desired, with added wear and tear on machine tools and breakage of dies. Another major difficulty is the high ash content of the available coke. Entrepreneurs much prefer by-product hard coke to the beehive variety, but the former is rarely obtainable, as suggested by the above data. Firms report considerable losses in foundry efficiency as a result.

Many other shortages exist. Mild steel materials and structural shapes are in short supply, and local stockists are often unable to supply the required types and sizes. Nuts and bolts were scarce, and ball-bearings very difficult to obtain in needed quantities. Firms in the South like the enterprises under study also experience great difficulty in obtaining prompt delivery of machinery spare parts, machinery belts, and similar items, almost all of which must come from industrial centres to the North, such as Bombay or Calcutta. The result is that even minor break-downs of equipment may put machines out of operation for weeks. When machines are of the latest imported types (such, for example, as the hydraulic presses of the two plastic button manufacturers) the difficulties are compounded immensely. Local mechanics do not understand the machines and cannot make even minor parts of the required precision. One of these firms reported a delay of almost a full year in obtaining a necessary spare part from England for one of its machines—a delay of six months in obtaining the necessary import licence and almost another six months to get delivery. There is little exaggeration in one entrepreneur's summation of the materials situation: "Shortages everywhere!"

Effects of the Raw Materials Situation. The most immediate effect of the tight materials situation just described is that firms have been obliged to operate considerably short of productive capacity. Plant capacity, as is well known, is an elusive concept, difficult to define and even harder to measure. In the course of the present investigation it soon became evident that the concept is particularly elusive when small enterprises in an under-developed country are concerned. Except in a few industries specializing in a single well-defined product such as power-driven pumps or rice hullers, where capacity can be defined in terms of a certain number of pumps or hullers per day, entrepreneurs have very vague notions regarding production capacity. The vast majority were quite definite, however, that they could increase production substantially with present equipment and work-force if they could get the needed materials. There is no doubt that this is true. Actual estimates of plant capacity being utilized are necessarily rough, but the great majority of entrepreneurs estimated that they are producing at between sixty and seventy per cent of capacity. In one case the estimate fell as low as forty per cent (due chiefly to market difficulties). A few firms reported that they were close to capacity operation. The latter were firms in consumer goods industries without serious material procurement problems.

The system of quotas which the shortage of materials has necessitated has also increased the difficulties of new firms entering engineering-manufacturing industries. Recently established enterprises experience long delays, sometimes extending up to two years, before they succeed in obtaining a quota from the state authorities. In the meantime they must rely on such purchases of scrap as they can make, plus costly dealings in the black market. Initial working capital requirements are thus increased during the first years of a firm's life, usually difficult enough without this added problem.

The raw materials shortage has also aggravated working capital problems of established firms. The experiences of Firm 2 are typical in this respect. Because of uncertainties and delays in delivery of its authorized materials, this firm was ordering pig iron in much larger amounts than formerly. After a long delay, the proprietor might suddenly be notified by his dealer that fifty tons would be delivered the following day. Cash payment is required of small firms, and entrepreneurs like the proprietor of Firm 2 have great difficulty in obtaining the necessary cash on such short notice. He might, accordingly, be unable to accept delivery of the full order, with the result that his quota would be reduced for the next period. In addition to all this, his initial deposit with the dealer had been tied up, restricting his working capital resources even further. An attack is being made on this problem in the form of a "Pilot Scheme" recently launched by the State Bank for provision of working capital to small industries.[3]

What, if anything, are firms doing to solve their raw material problems? Generally speaking, besides searching out all possible sources of supply, they are doing nothing. Nor is there much that a small individual enterprise can do in the face of the general shortage. The one large firm in the sample,[4] however, had just received a licence for the erection of its own blast furnace for production of pig iron when the writer was visiting this firm. Construction of the furnace had begun. Production capacity is to be fifteen thousand tons per year, using local ore deposits located some forty miles north of Coimbatore. Capacity is in excess of the firm's present needs, but will not be for long if the proprietors' plans regarding expansion and diversification work out.[5] The firm also plans to enter nut and bolt production on a major scale, if a licence can be obtained, and is already producing some nuts and bolts on machines imported from Germany, as is Firm 23. A much smaller enterprise (Firm 39), a structural workshop, is also trying to enter the nut and bolt industry.

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[3] See below, pp. 141–3.

[4] Firm 22, a large-scale manufacturer of textile machinery, located in Coimbatore. The managing partner reported great difficulty in obtaining a licence and stated that it took him over a year to secure it. There is a feeling among entrepreneurs of the area that the Government has been reluctant to grant licences for small private blast furnaces of the type being constructed by Firm 22, because of the impending establishment in the South of a large-scale plant for pig-iron production in the public sector. The Minister for Industries and Labour of the Government of Madras has announced that such a plant is to be established in Madras State as soon as the ores of Salem District have been sufficiently tested at the National Metallurgical Laboratory in Jamshedpur (Bihar). Cf. *The Hindu* (Madras), July 3, 1957.

[5] See below, Chapter VI, Textile Machinery, pp. 189ff.

These examples are interesting illustrations of the way acute shortages of materials in under-developed countries work against specialization and promote diversification of firms' activities.

The ten-member firms of the Southern India Engineering Manufacturers' Association are attempting to ensure more regular supplies by buying in large amounts and stocking materials. The Association has been appointed a Controlled Stockist of pig iron, with a licence to stock up to three hundred tons of the metal. The Association thus hopes to ensure a more continuous flow of available supplies to its members and reduce delays in delivery. When the writer was in the area a loan of one hundred thousand rupees was being sought from the Government in order to finance the acquisition and holding of pig iron stocks. The Association was also attempting to secure a licence for stocking of coke but had not yet succeeded.[6]

Employer-Employee Relations

A second problem causing grave concern to entrepreneurs is the problem of relations with their workers. Employer-employee relations in almost all the firms visited are very poor. Disputes are very frequent. Actual work stoppages take place in only a small minority of disputes, but day-to-day relations are marred by constant bickering and tension. Frequent complaints are lodged by workers with the State Labour Officer regarding conditions of work, discharge of workers, promotions, wages, and a host of other matters. Under Indian labour law, the Labour Officer must investigate all complaints registered, and employers are obliged to accept his conciliation services. The result is much time spent in arguing the merits of real and alleged grievances, frayed tempers, and generally deteriorating labour relations.

Some insight into the disturbed conditions prevailing in Indian industry is provided by the following cases from a Labour Officer's note-book.[7] It is worth producing some of these in full as a help to understanding the present state of affairs. Nothing gives a better view of the current situation than details of some of the disputes which are constantly occurring.

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[6] Information supplied by the Association.

[7] These accounts are reproduced as embodied in the Labour Officer's annual "Salient Features Report" to the Commissioner of Labour (in the files of the office of the Commissioner of Labour, Madras State).

One hundred and three women reelers of —— Mills staged a lightning stay-in strike at 8·15 A.M. on March 24th demanding wages for six reelers, who absented themselves from duty in the first half of the morning shift on March 15th, and forcibly entered the department in the second half of the shift and worked against the instructions of the Management. The Management refused to concede the demand of the workers, who refused to resume work despite the advice of the Labour Officer. Finally an enquiry was conducted in the Mill premises and advised the workers to resume work and they accordingly resumed work on March 30th.

The workers of —— Mills, Ltd. went on a stay-in strike at 7·20 A.M. January 3rd, 1956, protesting against the transfer of 3 workers from the 3rd shift to the 1st shift. On my advice, the workers resumed work at 12 noon on January 3rd. (On the same day) the Management suspended 7 workers at 4 P.M. on charges of shifting the belts from the fast to loose pulley, thereby stopping all the Ring Frames in the morning of that day which resulted in the stay-in strike till 12 noon. Though normal work was resumed, the night shift workers, who entered the Mills at 1 A.M. January 4th struck work demanding the cancellation of the 7 workers' suspension, and also demanding the re-transfer of 30 piecers from 1st shift to 3rd shift. . . . The workers of the carding and blow-room department also refused to work unless they were guaranteed their wages for the period their machines were stopped as a result of a stoppage of the Spinning Department. . . . The Management declared a lock-out of the Factory on January 6th. On the advice of the Commissioner of Labour, the Management agreed to open the Factory on February 10th and allowed all the workers to resume work except the three workers under suspension.

The jobbers and electricians of the —— Mills, Ltd. staged an illegal stay-in strike on the 16th October protesting against the suspension of an oiler in the blow-room for having refused to oil the machines. As a result the entire Mill was stopped and about 400 workers indirectly affected. In spite of the Labour Officer's advice the strike continued.

The Management of —— (one of the fifty-two firms under study) reported to me that 22 moulders refused to attend casting work which was started at 12 noon on June 5th, 1956. As a result of their refusal, the work had to be stopped. June 6th was a holiday for the factory. I proceeded to the Factory on June 7th with the Secretary of the Engineering Workers' Union and enquired into the dispute. The moulders informed me that they had not gone on strike as alleged by the Management, that they expressed the desire to attend to casting work provided the benefits such as free tiffin, tea and rest during the working hours after the casting work was complete were given them. The Management refused to concede to these benefits which they were enjoying in the past. They represented that now since the Management refused to grant these benefits and directed them to attend to the casting work, they refused to attend unless the above benefits were given. I recommended to the Management that if the duration of the casting was less than 4 hours there was no need to allow any rest for the workers, and the workers could be given free tiffin and tea irrespective of the number of hours the casting work was done. The Manager said that the Management would not agree to give free tiffin to the moulders, and free tea and rest would be given if only casting work lasted for more than 5 hours in a day. The moulders were, however, advised to attend to casting work and they accepted my advice and resumed work at 12 noon June 7th.[8]

The Drawers and Reachers numbering 14 of the —— Mills, Ltd. refused to attend to their work on the 12th March, 1956 at 7 A.M. As a protest of the stoppage of work in this department the Management had to stop the looms in the weaving shed and send away about 40 workers on "No work." I contacted the Management and the representatives of the National Textile Workers' Union and Mill Workers' Union. The workers' representatives informed me that on March 3rd two workers were about to cut off the warped yarn as the yarn was damaged and was unsuitable for carrying on drawing work. Since the weaving master objected to the cutting of the damaged warped yarn they could not proceed with their work. They represented that the weaving master informed them that they should attend to their work without cutting the yarn. . . . They said they did not go on strike; but the weaving master refused to allow them to cut the yarn, hence they did not work. I informed the workers' representatives that they should immediately attend to the work as directed by the weaving master and I would visit the Mills on the 14th of March, 1956 to enquire their grievances if any. The workers represented that their wage-rates should be revised. I informed them that unless normal work was resumed it would not be possible for me to enquire into their demands. The workers accordingly resumed work on the 14th morning at 7 A.M.

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[8] On June 12th, 12 moulders in the same establishment again went on strike demanding free tea and tiffin. The strike was accompanied by a "go-slow" movement in all other departments. Work returned to normal on June 21st.

The Weaving department workers numbering 100 of the —— Mills, Ltd. struck work at 4 P.M. on April 1st, demanding wages or compensation for the period certain looms were stopped for want of shuttles. An enquiry was held by the Labour Officer and during the enquiry the workers' representatives represented that the various demands of the weavers should be conceded by Management, that the earnings of the weavers had fallen so low as Annas 6, and Annas 8[9] basic pay for a day as a result of stoppage of certain looms for want of shuttles and beams, that the Management should pay wages for the period looms were stopped for no fault of the workers, and that the Management should revise the wage rates for the weavers. The dispute could not be settled by Conciliation. The Commissioner of Labour, Madras, took up the dispute for a discussion, met the parties on April 17th, 1956 and on the advice of the Commissioner of Labour, Madras, the workers of the Weaving department resumed work on April 19th.

On September 27th, 1955 the workers of——(one of the engineering firms in the present sample) numbering 250 struck work and their demand was that two temporary workers who were to be reinstated as agreed by the Management before the Labour Officer on September 26th, 1955, should be employed. The workers resumed work on the advice of the Labour Officer on September 28th at 10·30 A.M.

The workers of the same Factory struck work on October 7th, 1955 at 5 P.M. demanding wages for the period of the strike from

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[9] 16 Annas equal 1 Rupee (before conversion of the currency to a decimal system on April 1, 1957).

September 27th, 1955 to September 28th, 1955. On the intervention of the Labour Officer a settlement was reached and the workers resumed work on October 26th, 1955 at 8 A.M.

The workers number about 73 of —— (another of the engineering firms under study) went on a stay-in strike on October 27th, 1955 at 12 noon as a protest against the Management's action for suspending a worker.

The workers of —— (also an engineering firm in the sample) struck work on June 29th, 1955 at 1·30 P.M. demanding a letter to the State Insurance Doctor for treatment of two workers and the workers resumed work on July 1st, 1955 at 1·30 P.M. on the advice of the Labour Officer.

Disputes of the kind just detailed are, unfortunately, extremely frequent, as is seen from Table 22.

Table 22

NUMBER OF COMPLAINTS INVESTIGATED BY LABOUR OFFICERS AND MAN-DAYS AND WAGES LOST, MADRAS STATE, 1951–55

	1951	*1952*	*1953*[a]	*1954*	*1955*
I Total number of complaints investigated, including strikes and lock-outs	7,461	7,868	7,252	6,269	8,062
II Strikes and lock-outs:					
1. Total number of strikes and lock-outs	266	260	229	266	239
2. Man-days lost	2,66,838	5,93,096	2,88,090	2,16,229	2,19,370
3. Wages lost (Rs.)	..	..	..	3,87,769	4,95,340

SOURCE: Annual Reports on the Working of the Industrial Disputes Act (1947) for the years 1951–55. (Government of Madras, Department of Industries, Labour and Cooperation.)

[a] Data from October 1953 relate to Madras State less the areas ceded to Andhra State.

The number of disputes is very large, given the small extent of industrial development in the state, and indicates a serious condition of industrial unrest. As is to be expected, the areas most affected are Coimbatore and Madras City, the two most heavily industrialized regions in the state and the areas concentrated on in the present study. Table 23 indicates the situation in these two industrial centres.

Table 23

NUMBER OF COMPLAINTS AND INDUSTRIAL DISPUTES INVESTIGATED IN COIMBATORE AND MADRAS AND ENVIRONS, 1952–55

	1952	*1953*	*1954*	*1955*
1. Coimbatore (including Pollachi)	1,543	913	1,657	1,905
2. Madras and Chingleput	1,580	1,773	996	1,138

SOURCE: Annual Reports on the Working of the Industrial Disputes Act (1947) in the State of Madras for the years 1952–1955 (Government of Madras, Commissioner of Labour).

Causes of disputes range from serious disagreements over wages and conditions of work, to such matters as two strikes caused by so trivial a fact as a "doffer's losing his basket and refusing to accept another."[10] (Almost a hundred textile workers were idle for two days because of this incident.) It is significant that disputes over wages and other compensation constitute only a minority of complaints registered with Labour Officers. This fact is brought out in Table 24 overleaf.

What is revealing about this breakdown is that so many disputes arise out of questions relating to transfer of workers to other jobs or shifts, hiring and lay-off of workers (even those hired on a temporary basis), suspension of recalcitrant workers, and similar matters, normally considered routine affairs involved in the day-to-day operation of an industrial establishment.

Among the causes of disputes and work stoppages the following appear time and again: "Protest against the disciplinary action taken against a worker"; "Protest against notice calling for explanation of misbehaviour"; "Objecting to getting beams on looms on

[10] *Ibid.*

Table 24

NUMBER OF COMPLAINTS INVESTIGATED BY LABOUR OFFICERS IN MADRAS STATE, 1952-55, BY NATURE OF GRIEVANCE

Nature of grievance	*1952*	*1953[a]*	*1954*	*1955*
1. Dismissals and discharges	2,729	2,940	2,130	2,194
2. Wages	1,301	907	980	1,025
3. Bonus	662	531	521	720
4. Dearness allowance[b]	169	115	60	109
5. Leave facilities	191	121	229	312
6. Service conditions	739	713	276	459
7. Others	2,077	1,925	2,073	3,243
TOTAL	7,868	7,252	6,269	8,062

SOURCE: Annual Reports on the Working of the Industrial Disputes Act (1947) in the State of Madras for the years 1952–1955 (Government of Madras, Department of Industries, Labour and Cooperation).

[a] Data from October 1953 relate to Madras State less the areas ceded to Andhra.

[b] Cost of living allowance supplementary to basic wage.

one line to vacant beams on the other line"; "Refusal to do alternate work"; "Demand for cancellation of orders marking five reelers as absent for three hours for having slept inside the department"; "Protest against the sending out of a temporary roving doffer for misbehaviour"; "Demand for employment of temporary workers as against a new worker"; "Demand for the promotion of a man of the workers' choice"; "Protest against the non-engagement of some casual workers as there was no work."[10a]

It is this aspect of the problem which causes entrepreneurs most concern. Many of those encountered feel that ordinary plant discipline is gradually getting out of their control, with serious detriment to production.

[10a] These instances are taken from the *Annual Report on the Working of the Industrial Disputes Act (1947) for the Year 1955* (Government of Madras, Department of Industries, Labour and Cooperation). Annexure III, "Particulars of Strikes and Lockouts," pp. 9 ff.

Many undesirable effects flow from poor employer-employee relations. In the first place, many hours are lost by proprietors in wrangling with workers and during the subsequent investigation by the Labour Officers. Such loss of time can be quite serious in a small establishment where the proprietor is responsible for almost every phase of management from acquisition of raw materials to final marketing and is perhaps chief technician as well. In addition, workers either "go slow" or do not work at all while the investigation of the complaint is in progress. There is also the wear and tear on nerves which accompanies continual bickering. More than one of the entrepreneurs interviewed expressed concern over the effect of the situation on his health and general peace of mind. Many declared that the pleasure they once experienced in operating and building up their own business has diminished considerably because of constant labour trouble.[11]

In the second place, every dispute, no matter who finally wins it, leaves a residue of ill-feeling and hostility and disposes the defeated party to look for an opportunity to even up the score. This appears to explain in part at least the many disputes and work stoppages occasioned by trivial incidents. The immediate causes of those disputes are but symptoms of the underlying hostility and antagonisms which have developed over the years.

In the third place, employers have grown increasingly cautious in disciplining workers. In addition to being hemmed in by many pieces of legislation, discussed below, they overlook many things rather than risk a dispute and subsequent long-drawn-out investigation. It is, accordingly, by no means unusual in these plants for machines to run unsupervised or for materials to pile up while the worker who should be on duty has gone off somewhere. The effect on productivity is obvious. Such incidents also increase the difficulties of training new workers fresh from rural villages, who do not take easily to factory discipline in any case. As will be seen below, the majority of firms hire "raw hands" fresh from the villages.

The net effect of all these factors has been to damage seriously the morale of both entrepreneurs and workers. Declining morale is, in the longer view, much more serious than immediate production losses. Unless corrected, it can seriously retard industrial development.

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[11] "What then keeps us going" one proprietor asked himself when discussing these problems with the writer. His answer: "The fact that profits are very high."

It is not easy to place the blame for the present chaotic labour relations. In any appraisal of the matter, however, four main factors must be taken into account: (*i*) poor working conditions; (*ii*) low wages; (*iii*) the activity of labour unions; and (*iv*) Government policy in the area of labour relations.

With regard to the first two of these points, workers have many legitimate grievances. Ordinary working conditions in the plants are at best not good and at worst reminiscent of the early days of the Industrial Revolution in Western countries. The following is an excerpt from a report on engineering establishments in Madras State following a survey made in 1954:

> In the majority of establishments, the working conditions leave much to be desired, more especially in the smithies, machine shops and foundries. The floor in several factories was *kutcha*[12] and uneven. Workers had to sit on wet ground. Machinery was arranged in haphazard manner and raw materials and scrap were heaped in odd places. Finished goods were in some places stacked near the machinery leaving little space for workers to move about. In some factories proper guards were not provided for belts. In one factory we found old deal-wood boxes piled up to serve as guards. . . . In one factory there was no access to some machinery except by passing under unguarded belts. Sufficient safety consciousness was not noticeable among the large body of employers and workers, particularly among workers handling molten metal in forges, workers in grinding, welders, etc. Welders were not in many cases using safety goggles to protect their eyes.[13]

A few of the firms visited in the course of the present study are conspicuous exceptions to this description, with their clean, well-laid-out plants.[14] The great majority of them, however, are accurately described by the words just quoted. In several cases conditions are much worse than the above description indicates. One of the factories in particular was straight out of one of Dickens' novels. This plant consisted of a series of dark, ill-ventilated, smoke-filled rooms, one opening off another, in which young boys crouched over open fires all day long, fashioning moulds out of clay. In another plant, young men clothed only in g-strings worked in intense heat transporting molten metal in shallow dippers, with drops of metal often splashing close to their bare feet. These are extreme examples, however.

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[12] i.e. not hard-surface.

[13] *Report of the Tripartite Enquiry Committee on Minor Engineering Industry, Madras, 1954* (Government of Madras, Tripartite Enquiry Committee, 1954), pp. 4–5.

[14] One of these has had little labour trouble in five years of operation (Firm 43). Several others, notably Firms 24 and 37, have had a great deal of trouble, due chiefly to retrenchment problems as they have expanded and shifted into new lines of production.

It might be thought that workers who are uneducated and illiterate and who come from very poor home surroundings would not be overly concerned about working conditions in the plant where they are employed. Certainly they will put up with much more than a worker in Europe or America.[15] Nevertheless, hundreds of complaints made to the Labour Officer each year concern service conditions (as seen in Table 24). This fact shows that workers are by no means completely indifferent to working conditions or to safety hazards.

Added to poor working conditions as a factor in workers' dissatisfaction is the fact of low pay. Table 25 overleaf gives an indication of the wages prevailing in the engineering establishments under study.

The adequacy of wages must, of course, be judged in relation to the cost of living. The writer was unable to discover any cost of living surveys for the areas under study. It is commonly estimated, however, that an adult worker requires at least *one rupee* a day to secure an adequate amount of food for himself. It is obvious that the above daily wage rates, even assuming regular employment for approximately twenty-six days a month, are insufficient for the support of a family at anything but the barest subsistence level. Even a casual visit to a typical worker's home serves to confirm this observation. The Tripartite Enquiry Committee referred to above also cites inadequacy of workers' wages as one of the most serious problems of the industry. This Report observes that

> workers appeared to be almost without exception indebted, the borrowings being at exorbitant rates of interest. Whatever be the contributing reasons for this indebtedness, there is no doubt

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[15] This fact has also been stressed by International Labour Office Productivity Teams working in India. See below, Chapter v, pp. 166–8.

Table 25

AVERAGE DAILY EARNINGS OF SELECTED CATEGORIES OF WORKERS IN ENGINEERING ESTABLISHMENTS IN COIMBATORE AND MADRAS DURING 1955

Category of worker	*Coimbatore*			*Madras*		
	Rs.	a.	p.[a]	Rs.	a.	p.
Apprentices		..		0	13	2
Blacksmiths	2	7	6	2	3	6
Carpenters	2	9	4	2	5	10
Engine cleaners	1	10	2	1	10	0
Drillers	1	10	10	1	15	3
Engine drivers	2	8	1	2	3	9
Electricians	2	4	3	3	7	7
Fitters	2	0	9	2	7	5
Grinders	1	13	6	1	15	4
Hammermen	1	9	9	1	7	6
Lathe turners		..		3	2	4
Painters	2	1	0	2	0	4
Pattern-makers	3	9	0	3	5	0
Semi-skilled labourers		..		1	7	0
Coolies	1	4	0	1	9	7
Foremen	4	7	2	7	9	7

SOURCE: *Reports on the Working of the Factories Act in Madras State for 1955* (Government of Madras, Office of the Chief Inspector of Factories, 1955), Appendix IV, pp. 114–15.

[a] One Rupee equals approximately U.S. $0·21. (Rs 4·75 = U.S. $1·00); 16 Annas = 1 Rupee; 12 Pies = 1 Anna.

that the existing wage rates have not enabled them to live within their income.

From our study of wage-levels in this State it is seen that the rates are definitely lower in the minor engineering industry than in many other organized industries, especially for the lower categories of wage earners.[16]

The Report recommends that wage scales be set so as to enable an adult unskilled worker to earn at least fifty-two rupees for a month of twenty-six working days.[17]

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[16] *Report* . . ., p. 23. For a comparison of wage rates in the engineering industry with rates prevailing in other industries in the state, see Appendix IV of the annual *Reports on the Working of the Factories Act in Madras State* (Government of Madras, Office of the Chief Inspector of Factories).

[17] *Ibid.*, p. 23.

Another source of workers' discontent is the fact that wages for a given type of work vary greatly from plant to plant, and even within the same plant. The following table presents data on maximum and minimum monthly earnings for certain categories of workers in six of the fifty-two firms included in the present study.

Table 26

DIFFERENTIALS IN GROSS MONTHLY EARNINGS OF SELECTED CATEGORIES OF WORKERS IN SIX ENGINEERING ESTABLISHMENTS (RUPEES)

Firm	*Blacksmiths*		*Carpenters*		*Fitters*		*Turners*		*Moulders*	
	Min.	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*	*Min.*	*Max.*
A	55	100	60	90	55	95	55	93	55	98
B	53	..	75	..	22	84	28	82	..	..
C	52	72	..	..	52	85	52	85	..	..
D	75	75	59	59	28	88	33	105	25	105
E	..	40	32	88	15	125	30	82	15	107
F	64/12[a]	91	61/4	101/8	26/4	101	26	112	26/4	106/12

SOURCE: *Report of the Tripartite Enquiry Committee on Minor Engineering, Madras, 1954* (Government of Madras), Appendix VII, Parts N & O.

[a] i.e. Rs. 64, Annas 12.

When a worker knows that someone else in the same plant, or in a nearby plant, is receiving more money for the same work than he, it is not calculated to make him more contented in his job. Some differentials based on seniority and quality of work are, of course, necessary and desirable. Well defined rules in such matters, however, are still to be introduced into most of the enterprises investigated. A great part of the difficulty stems from lack of a uniform terminology for job classification. The meaning of "skilled," "semi-skilled" and "unskilled" varies greatly from plant to plant, and the work performed by a "blacksmith" in one shop may differ greatly from the work performed by the same category of worker elsewhere. Innumerable disputes arise over matters involving classification of workers: whether they are to be classified as apprentices or workers, skilled or unskilled, as temporary or permanent; whether a worker classified in a certain category can be required to do other kinds of work and at what rate of pay; whether a worker was legitimately transferred to a new classification by the employer, and a host of similar matters.

All these questions normally provided for in advanced countries by specific provisions in the labour contract become in India a subject for argument and conflict and eventual complaint to the Labour Officer.

Another fertile source of disputes is the annual bonus which firms must pay their workers. Present legislation in India requires every industrial establishment showing a profit to distribute a portion of these profits to its workers in the form of a yearly bonus. No norms are prescribed, however, for the determination of the amount of bonus to be paid, such determination being left to negotiation between management and workers. The outcome is easily imagined in the light of what has already been said. The first argument develops over the time the bonus is to be paid. Workers usually prefer payment on the occasion of one of the important festivals, such as Divali (in October), whereas employers may wish to wait until the end of the year. This problem is minor, however, compared with settlement of the amount to be paid. Workers are reluctant to accept the proprietor's statements as to the amount of profits made during the year, and he is unwilling to show them his books, even if they were able to interpret them. The outcome is a haggle in which each party gradually modifies its initial figure until agreement is reached or the matter is referred to the Labour Officer. Negotiations may then be drawn out for a year or longer. Thus, one of the firms in the present sample reached agreement in October 1956 on the bonus to be paid for the year ending April 30, 1956. Another settled the question of the bonus due to the workers for calendar year 1954 only in November 1955 —when it was time to begin negotiating the 1955 bonus! Such haggling, repeated year after year, can do much, all by itself, to destroy friendly relations between workers and management.

The amounts actually paid as bonus are often not large. Some typical examples of settlements reached by firms under study are as follows: "five-eighths of average consolidated wages, i.e., total earnings in a month"; "one-third of basic monthly wages or forty rupees, whichever is higher"; "one month's consolidated wages"; "one and three-quarters months consolidated wages." For a worker living close to subsistence, the amount involved, though small, is important. Similarly, for a firm with a hundred workers and operating on a financial shoe-string an outlay of four or five thousand rupees in one lump sum can be a source of considerable inconvenience. The net result of the bonus provision, so far as industrial relations go, is a great deal of friction and time lost in negotiation. The theory behind the provision is, presumably, that when workers have a stake in the profits of the company they will increase productivity so that profits will be larger. There is no evidence that the desired goal is being achieved, and much that the effect on productivity is quite the opposite.

Thus far we have been discussing two main factors accounting for poor labour relations in the area studied: poor working conditions and low wages. They constitute the background against which the remaining two factors must be projected, namely, the activity of labour unions and the general policy of the Government regarding employer-employee relations.

It is evident from what has been said that there is a great deal of scope for trade union activity in Indian industry. Much of this activity, unfortunately, takes the form of agitation designed to advance the interests of particular unions or the political careers of their leaders, rather than genuine collective bargaining on straightforward economic issues.[18] To understand how this situation has come about, the development of the trade union movement in India must be briefly reviewed.

It is estimated that of seven million persons employed in industries in India, approximately three million are organized in trade unions,[19] grouped for the most part into four major Federations. These four Federations, with their claimed membership are shown in Table 27.

Each of the first three of these Federations is aligned with one of the three major political parties in India, namely, the Indian

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[18] This statement and the following analysis of trade union activity is not based on interviews with entrepreneurs, who can hardly be expected to be objective in this matter. The sources of the analysis are the studies cited in the course of the discussion, as well as many conversations with Labour Officers, other Government officials and various neutral parties working in the field of worker education. An official with ten years of active experience as a Labour Officer in both Madras and Coimbatore was of particular help.

[19] *Report of the International Team of Experts on Workers' Education* (in cooperation with the Ford Foundation), July, 1957, p. 8 (Mimeographed). This report was the outcome of the investigations of a team of four foreign and four Indian labour experts, headed by Mr. Anthony Luchek, Professor of Industrial Relations, Pennsylvania State University. The team toured India in early 1957 with a view to organizing a workers' education programme aimed at producing union leaders drawn from the ranks of the workers.

Table 27

NUMBER OF MEMBERS AND AFFILIATED UNIONS CLAIMED BY FOUR MAJOR INDIAN TRADE UNION FEDERATIONS AS OF MARCH 1955

Name of Federation	*No. of unions claimed*	*No. of members claimed*
1. Indian National Trade Union Congress	977	13,38,607
2. All-India Trade Union Congress	1,030	7,89,045
3. Hind Mazdoor Sabha	355	4,76,630
4. United Trade Union Congress	502	5,13,623

SOURCE: *Report of the International Team of Experts on Workers' Education*, p. 9. The figures are as of March 31, 1955. The writers of the Report caution that the figures are almost certainly over-stated. They constitute the best estimate available, however.

National Congress, the Communist Party, and the Socialists respectively. The origin of the four Federations is as follows.[20]

In the pre-Independence period, the All-India Trade Union Congress (AITUC) was the only major federation of trade unions in India. By 1947, AITUC was firmly under the control of the Communists, expelled from the Congress Party in 1945. After the latter Party came to power, it was decided that a new labour federation should be formed to challenge Communist influence in the unions. At the instance of the Congress Party, a conference in New Delhi in May 1947, formed the Indian National Trade Union Congress (INTUC). Later that same year the Working Committee of the Congress Party recommended that all Congressmen affiliate the unions which they were engaged in organizing, or of which they were members, with the newly formed Federation.

Shortly after the organization of the INTUC a split took place within the ranks of the All-India Trade Union Congress, when the Socialists broke with the Communists at the end of 1948 to form their own labour federation, the Hind Mazdoor Sabha. The following year, in April 1949, another split occurred in the AITUC, when the United Trade Union Congress was formed with a view to separating the labour movement from parties and politics and confining its scope to the traditional areas of trade union activity.

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[20] The following account is based on Ramesh C. Goyal, ***Post-War Trends in Industrial Relations in India***, Eastern Economist Pamphlet No. 33 (New Delhi: The Eastern Economist, Ltd., 1955), Chapter II. This study is an abridged version of Mr. Goyal's doctoral dissertation, written at Harvard University.

From this brief sketch it can be understood why the trade union movement in India is often said to have developed as a political movement rather than as a movement specifically aimed at the economic advancement of the workers. Three of the four major Federations have developed under the sponsorship of a political party and have very close ties with the party in question. The leaders and politicians of the parties, for their part, look upon the unions chiefly as a method of advancing the political interests of the party and their own political careers. The situation is, moreover, greatly complicated by the fact that party workers and politicians provide most of the leadership on the local union level, and not the workers themselves.[21] Leadership and control of the unions by so-called "outsiders" is generally admitted in India, and the situation could hardly be otherwise, given the low level of literacy and general education of the workers.[22]

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[21] Cf. Goyal, *Post-War Trends . . .*, p. 7; P. C. Jain, *Industry and Labour in India* (Allahabad, Chaitanya Publishing House, 1956), p. 168; *Report of the International Team on Workers' Education*, p. 9.

[22] Recognition of this fact lies behind the current proposal for a widespread programme of workers' education, toward which the study tour of the International Team of Experts already referred to was intended as a first step. Among the major recommendations of the Team are the following:

> A series of programmes should be organised in existing educational institutions, at local union level, community centres, places of employment, or at labour colleges and schools that may be established to provide instruction in:
>
> A. Trade union consciousness;
> B. The purposes, functions and administration of trade unions;
> C. The conduct of union-management relations and knowledge of the industry;
> D. The development of a mature individual and his role as a citizen.
>
> Instructions should be provided for programmes as follows:
>
> A. Single-session conferences;
> B. Part-time classes during and/or outside working hours;
> C. Full-time courses from one week to three months or of a longer duration when required;
> D. Such other methods as may be found desirable.

(*Continued on next page*)

The "outsiders" who dominate the unions are naturally anxious to increase their popularity with the worker-members and to demonstrate their interest in the latter's welfare. The result is that workers are encouraged to make all kinds of demands on employers, even when there is no reasonable hope of employers' acceding to them. The theory seems to be that enough agitation and shouting will eventually create an illusion of progress. Thus, in early 1955 the General Engineering and Mechanical Workers' Union presented seven of the firms included in the present study with the following eighteen demands: fixation of grades; dearness allowance; terms of service for apprentices; regularity bonus; allowance for dress; free supply of sandals; free supply of soap, oil and brush; supply of free glasses; production bonus; leave facilities; gratuity; housing facilities; credit societies; co-operative societies; starting of canteen; formation of works committee; wages for rest interval; and revision of standing orders.[23]

It is common in all bargaining to ask initially for more than one expects to get, but the above list obviously goes beyond all reasonable limits in that respect. In his memorandum, the Labour Officer stated that of these eighteen "certain demands are so extravagant that these managements cannot afford to bear the burden at present," which is hardly an over-statement. The incident illustrates the tendency of leaders to encourage the workers in any type of extravagant demand, rather than train them in the sober realities of genuine collective bargaining.

It is recommended that these courses of instruction be made available to "any industrial worker, whether literate or illiterate, trade union member or not," selection of candidates to be made by Boards set up for that purpose. *Report*, Recommendations 1–7. At least one member of the team of experts believes that the "outsiders" who presently control the unions should be included also in the educational programme: "The 'outsider' has played a dominant role in the progress and activity of practically every large trade union in the country and to exclude him entirely and immediately from the trade union movement might deprive it of the urgent leadership it still needs for its development. Till labour leaders are forthcoming from the rank and file, the 'outsider' will still be needed. He should therefore be permitted, like the rest of the unionists to take part and profit by a programme of Workers' Education." A. Fonseca, "Workers' Education," *Social Action* (Poona, Indian Institute of Social Order, July 1957), p. 272.

[23] Memorandum of September 15, 1955, from the Labour Officer to the Secretary to the Government of Madras, Department of Industries, Labour and Co-operation.

In fairness to the present leadership, however, it must be recognized that without their intervention the workers would be completely at the mercy of employers. It is the leaders who have organized most of the unions, and it cannot be denied that the workers have been protected to a greater extent than they would otherwise have been. The time has come, however, as everyone now recognizes, to reorganize the trade union movement in India on more mature and rational lines.

An interesting question to which there is no satisfactory answer is who is responsible for the innumerable "lightning strikes." These occur day after day in industrial plants on the slightest provocation, such as the suspension of a worker, discharge of a temporary worker, or any number of other reasons. Such incidents appear entirely too spontaneous to be the result of instructions of union leaders, and they must be initiated by some worker in the plant. They do, however, exhibit more worker solidarity and concern with other workers' interests than one would expect. An analysis of the group relations involved in these strikes would make an interesting sociological study. To the present writer, the most plausible explanation seems to be that agitation has now become something of a habit with Indian industrial workers. Having been harangued so often by union leaders regarding their rights and encouraged to make all kinds of demands, they have taken matters in their own hands to some extent. There can be no doubt that such demonstrations and harassment of management must give considerable satisfaction to under-privileged workers with few opportunities for expression of their grievances. When account is also taken of the easily excitable temperament of the ordinary worker it is not difficult to see how such flare-ups can develop on slight provocation.

The labour relations problem in India is further complicated by union rivalry on the local level. Not only are the major Federations bitter political rivals, but most local unions are small, poorly organized and financially weak. As a result they are anxious to increase their membership and prestige by "demonstrations of power" against the employer, particularly when, as frequently happens, several rival unions exist side by side in the same plant. The Indian worker's well-known readiness to shift allegiance from one union to another does much to encourage inter-union rivalry.

Coming now to the particular enterprises which form the subject of the present study, it can be said that the factors just discussed have played a part in creating the labour relations which cause entrepreneurs so much concern. In the view of the entrepreneurs themselves, the chief villains in the piece are the "outsiders" who run the trade unions and who are constantly "stirring up the workers" and encouraging them to put forward "foolish demands." In view of what has been said above, there is some truth in the employers' view, even allowing for their undoubted tendency to label all union activity and collective bargaining "trouble-making" and "interference by outsiders." These men fail to take into account, however, the many genuine grievances of workers in the matter of working conditions and wages which give the "outsiders" their opportunity to "make trouble." The entrepreneurs' reply to this invariably was that it is useless to give the workers more than they are now receiving, since concessions only lead to further demands and worse trouble. Behind this statement, however, lies the conviction that workers are really being treated just about as well as they deserve and that they would be contented if outsiders did not interfere. The upshot is pretty much of a stalemate.

Inter-union rivalries have also played a part in the troubles of the enterprises under study. The Tripartite Enquiry Committee on Minor Engineering in Madras State found fourteen registered trade unions in the engineering industries of the state, all of them poorly organized and financially weak.[24] This situation encourages raids on one another's membership and the search for opportunities to demonstrate the union's effectiveness in promoting workers' welfare. Many entrepreneurs reported such rivalries as a source of trouble. Several firms reported the presence of more than one union in the plant, and one reported the presence of three: a Congress, a Socialist and a Communist union. While common in larger firms, such plurality of unions is not usual in firms of the size under study.

Next to the "outsiders," the entrepreneurs interviewed place the blame for the present state of labour relations on the policy of the Indian Government. As a group, they protested eloquently that the Government has "coddled workers" since Independence. They allege that Government policy has led workers to believe that there is no limit to what they are entitled to, and that this attitude is a major factor in the labour unrest. It is extremely difficult to evaluate such a proposition. To understand why employers feel

[24] *Report* . . ., p. 4.

this way, however, it will be well to review briefly the major developments in labour legislation since Independence.[25]

The Indian National Congress committed itself in a resolution passed in 1946 to "the achievement of a society in which democracy extends from the political to the social and economic sphere and in which there would be no opportunity for the privileged classes to exploit the bulk of the people, nor for gross inequalities such as exist at present."[26] Upon forming the Government after Independence, the Congress Party set about achieving this ideal through the passage of numerous pieces of labour legislation. Among the most important measures enacted since 1947 are the following:

1. The Industrial Disputes Act of 1947, subsequently amended in 1953 and 1956. Some of the most important provisions of this Act are discussed below.

2. The Indian Factories Act was revised in 1948, reducing the hours of work from 54 to 48 per week and providing for a work-week of six days and certain annual holidays with pay. It required employers to appoint a Welfare Officer in every plant employing five hundred workers or more. In the same factories rest-pauses were made compulsory, as well as canteens at which workers would be provided with food and refreshment on a non-profit basis. The Act was amended in 1953 to prohibit the employment of women and children at night.

3. The Employees State Insurance Act, also passed in 1948, provides for the establishment of an Employees State Insurance Corporation and five types of benefits, namely, sickness, maternity, disablement, medical and dependents benefits. The Act applies to all perennial factories employing twenty or more persons and covers all employees whose total remuneration does not exceed Rs. 400 per month. Provision is made for free consultations, medicines, drugs, dressings and treatment by specialists. Serious cases are admitted to hospitals, and doctors visit patients in their

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[25] The following account is based chiefly on Goyal, *Post-War Trends in Industrial Relations* . . ., Chapter IV, and *Recent Developments in Certain Aspects of Indian Economy* (New Delhi : International Labour Office, India Branch, 1955), vol. I, Chapter I, and vol. II, Chapter I. For an illuminating discussion of the philosophy behind the Government of India's approach to industrial relations see Van Dusen Kennedy, "The Conceptual and Legislative Framework of Labour Relations in India," *Industrial and Labour Relations Review*, July 1958, pp. 487–505.

[26] Quoted by Goyal, *Post-War Trends* . . ., p. 34.

homes. There are also arrangements for ambulance and emergency treatment in case of injuries sustained on the job. Besides free medical aid, an insured person is entitled to a sickness cash benefit if he has made not less than two-thirds of the required number of contributions in a stipulated period, generally six months. The benefit amounts to slightly more than half of a worker's average wages. In addition, there is provision for a cash benefit for injury sustained on the job.

The programme is financed by compulsory contribution of both employers and employees. Employers are required to contribute 1·25 per cent of their total wage bill in areas covered by the benefit provisions of the Act, and at the rate of 0·75 per cent in other areas. Employees' contributions are adjusted to their earnings, eight categories having been set up. Employees with an average daily wage of less than one rupee are not required to pay anything, nor are those employed in areas where the benefit provisions have not yet come into effect. Provisions of the Act will eventually apply to all parts of the country.

4. The Minimum Wages Act of 1948 authorized the Union Government to require State Governments to fix minimum wages by statute in major industries, and in other industries at their discretion. As a result of this measure most states have enacted minimum wage laws.

5. A compulsory Provident Fund Scheme was introduced in six major industries in 1952. The programme is a form of "social security." Employers and employees pay equal contributions fixed according to a schedule of wage classes. The full amount standing in a member's name is payable at any time after he reaches fifty years of age, provided he has completed five years' membership in the Fund, or on retirement due to permanent incapacity. The programme originally applied to the cement, cigarette, engineering (electrical and mechanical), iron and steel, paper and textile industries and has since been extended to eighteen others.[27] It covers factories in these industries which employ fifty or more persons, but does not include those less than three years old.

6. A number of other labour welfare acts have been enacted for mining and plantation industries.[28]

The first of these measures, the Industrial Disputes Act of 1947, set up a system of compulsory conciliation and arbitration and established a hierarchy of Conciliation Officers, Industrial Tribunals at the state level, and an Appellate Labour Tribunal.[29] In all disputes which cannot be settled at the plant or Works Committee level, the conciliation services of the Labour Officer must be accepted. If he cannot negotiate an agreement, the matter is referred to the State Labour Commissioner for possible referral to the Tribunal for arbitration. Tribunals are empowered to impose decisions, but the parties have the right of appeal. The Act, as subsequently amended, also defined employers' rights in the matter of lay-off and retrenchment of workers. To protect workers from retaliatory action on the part of employers, Section 33 of the original Act provided that while conciliation proceedings are pending, no employer may alter "to the prejudice of the workmen the conditions of service applicable to them immediately before the commencement of such proceeding, or discharge or punish any workman save with the express permission in writing of the Conciliation Officer, Board or Tribunal." Because of the long-drawn-out nature of many conciliation and arbitration proceedings, this provision has the practical effect of interfering with the day-to-day operation of establishments, and is generally considered to have contributed to the undermining of discipline in factories. This fact has been recognized, and at the time of the most recent amendments of the Act employers were promised that Section 33 would soon be modified.[30]

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[27] For the industries included, see *India 1957*, p. 379. [28] *Ibid.*, pp. 379–82.

Lay-off and discharge of workers at times other than during pendency of conciliation proceedings are also carefully regulated by the Act, and payment of unemployment compensation and severance pay by employers has been made compulsory. Thus, section 25C of the present Act is as follows:

> 25C. (1) *Right of workmen laid off to compensation*: Whenever a workman (other than a badli workman or casual workman)[31]

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[29] Cf. Jain, *op. cit.*, pp. 161–2. The Appellate Tribunal was established by the Industrial Disputes (Labour Tribunal Appellate) Act, 1950, but was abolished by the most recent amendments to the Act in 1956. In its place a system of Labour Courts and National Tribunals has been set up, the machinery of Conciliation Officers and Industrial Tribunals being maintained on the state level. For a discussion of the new machinery, cf. "Three-Tier System of Labour Tribunals," by L. C. Joshi, in *Commerce*, Annual Review Number, December 1956 (Bombay), pp. A130–A2. [30] Joshi, *ibid.*, p. A130.

[31] As explained at the end of the section, " 'Badli' workman means a workman who is employed in an industrial establishment in the place of another workman

> whose name is borne on the muster rolls of an industrial establishment and has completed not less than one year of continuous service under an employer is laid off, he shall be paid by the employer for all days during which he is so laid off, except for such weekly holidays as may intervene, compensation which shall be equal to fifty per cent of the total of the basic wages and dearness allowance that would have been payable to him had he not been so laid off.
>
> Provided that the compensation payable to a workman during any period of twelve months shall not be for more than forty-five days.
>
> (2) Notwithstanding anything contained in the proviso to sub-section (1), if during any period of twelve months, a workman is laid off for more than forty-five days, whether continuously or intermittently, and the lay-off after the expiry of the first forty-five days comprises continuous periods of one week or more, the workman shall, unless there is an agreement to the contrary between him and the employer, be paid for all the days comprised in every such subsequent period of lay-off for one week or more compensation at the rate specified in sub-section (1).
>
> Provided that it shall be lawful for the employer in any case falling within this sub-section to retrench the workman in accordance with the provisions contained in section 25F at any time after the expiry of the first forty-five days of lay-off and when he does so, any compensation paid to the workman for having been laid off during the preceding twelve months may be set off against the compensation payable for retrenchment.[32]

To be eligible for the compensation thus provided, the worker must be willing to accept employment in another establishment of the same employer, provided it is not more than five miles from the establishment where the worker is presently employed, if such employment is available. If not, the worker must present himself at the plant daily at the appointed time. If the lay-off is due to a strike or slowing down of production on the part of workmen

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whose name is borne on the muster rolls of the establishment, but shall cease to be regarded as such for the purpose of this section, if he has completed one year of continuous service in the establishment."

[32] Sub-section (2) of section 25C was added by amendment of September 4, 1956.

in another part of the establishment, no compensation must be paid by the employers. These conditions are spelled out in detail in Section 25E.

Concerning the employer's obligation to pay severance pay when a worker is permanently discharged, Section 25F provides as follows:

> 25F. *Conditions precedent to retrenchment of workmen.* No workman employed in any industry who has been in continuous service for not less than one year under an employer shall be retrenched by that employer until:
>
> (*a*) the workman has been given one month's notice in writing indicating the reasons for retrenchment and the period of notice has expired or the workman has been paid in lieu of such notice, wages for the period of such notice.
>
> Provided that no such notice shall be necessary if the retrenchment is under an agreement which specifies a date for the termination of service;
>
> (*b*) the workman has been paid at the time of retrenchment, compensation which shall be equivalent to fifteen days' average pay for every completed year of service or any part thereof in excess of six months; and
>
> (*c*) notice in the prescribed manner is served on the appropriate Government.

Section 25H provides that when the employer again expands employment, he must give retrenched workers the opportunity to apply first:

> 25H. *Re-employment of retrenched workmen.* Where any workmen are retrenched, and the employer proposes to take into his employ any persons, he shall in such manner as may be prescribed, give an opportunity to the retrenched workmen to offer themselves for re-employment, and the retrenched workmen who offer themselves for re-employment shall have preference over other persons.

The procedure to be observed in the case of retrenchment and re-employment has been prescribed in the Madras Industrial Disputes Rules, 1948 (as amended). It is worth quoting the section as an illustration of the complications which arise when such provisions as the foregoing are put into practice, and as an example of the extensive "paper work" which has devolved on employers as a consequence.

32. [When about to retrench workmen] the employer shall prepare:

(*a*) a list of all workmen in each category whose retrenchment is contemplated, their names being arranged according to the seniority of service in that category, and cause copies thereof to be pasted on the notice boards in a conspicuous place . . . at least 7 days before the date of actual retrenchment. Copies of the list may also be sent to the Trade Union connected with the industrial establishment.

(*b*) another list of workmen who were retrenched during the preceding 12 months, arranged according to the seniority of their service in the category and cause copies thereof to be pasted on the notice board in a conspicuous place. . . .

33. Re-employment of retrenched workmen. On the occurrence of vacancies after retrenchment, when an employer proposes to take into his employ any person, he shall

(1) arrange for the display on the notice board in the premises of the industrial establishment the details of the vacancies to be filled;

(2) give notice of the vacancies in writing to every individual retrenched workman eligible to be considered for the vacancies, such notice to be despatched to the address given by the workman at the time of retrenchment or any time thereafter;

(3) at the same time he may also send a notice to the Trade Union or Unions . . . giving the number of vacancies and the names of the retrenched persons addressed.

The employer's liability to send notice of vacancies to the retrenched workmen shall be limited to one year from the date of retrenchment. A retrenched workman on receipt of the notice of vacancies from the employer shall offer himself for work or send a reply within a period of 10 days from the date on which the notice is posted, and if he fails to do so, he shall lose all his claims for preference in future vacancies and the employer shall be free to fill the vacancies in all cases when retrenched persons do not come forward for re-employment.

The effect of these various provisions has been, as was intended by legislators, a severe curtailment of employers' freedom in the matter of hire and discharge of workers. Not only are there many time-consuming formalities to be gone through (not all of which are spelled out in detail, giving occasion for many disputes as to whether the correct procedure has been observed in all details), but lay-off and discharge of workers can be an expensive thing, especially for small firms with little liquid capital at their disposal.

Several employers reported an interesting difficulty concerning severance pay. These men claimed that on several occasions workers who had been with them for several years deliberately provoked discharge in order to obtain the sum of money which would then come to them as severance pay. When a worker has been employed in an establishment for six or seven years, severance pay would easily amount to several hundred rupees, a very sizable sum for a poor worker to have in his hands at one time. The writer was unable to confirm the instances alleged, but it would seem somewhat surprising if such incidents did not occur occasionally, particularly when a workman desires to start a small workshop of his own. The study of small industry in a North Indian town cited earlier mentions a number of instances where such shops were started with as little capital as two hundred rupees, or slightly more.[33]

Even apart from such cases, there can be no doubt that the curtailment of employers' rights in the matter of hiring and discharge have made it more difficult for them to maintain discipline in their factories. Employers can discharge workers for poor quality work, wasting time or other misbehaviour, but not easily, and they think twice before becoming embroiled in the red-tape, disputes and expense which will be involved. Workers have been made fully aware of their rights in the matter of lay-off and discharge by their union leaders and naturally take advantage of the situation to some extent.

The purpose of the foregoing discussion has not been to evaluate fully the industrial relations policy of the Government of India, something which is outside the scope of the present study, but rather to explain the basis of entrepreneurs' view that the Government, as well as union leaders, have contributed to the present atmosphere of tension and unrest. According to the argument, mentioned above, there has been too much stress on workers' rights without at the same time reminding them of their responsibilities, particularly the obligation of raising productivity so that the benefits guaranteed by law can be met. The writer is not prepared to say to what extent Government policy is responsible for the lack of factory discipline which now characterizes Indian industry and the firms covered by the present study. The situation, however, is serious, and unless matters are improved in the near future India's industrial development will be seriously hampered.

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[33] McCrory, *Small Industry in a North Indian Town . . .*, Case-studies 3, 6 and 7.

Apart from the constant losses in production one competent student of labour relations in India believes that the present situation has depressed the private sector and chilled the enthusiasm of industrial investors. He attributes this in part to the "fervour with which the national government has pursued its objective of trying to impose A1 labour legislation in a C3 economy."[34]

The same author believes that a fundamental defect in the policy hitherto followed has been its lack of stress on developing sound procedures of collective bargaining between workers and management and preference for "an all embracing State-paternalism" in the form of intervention by the Government at every stage through the machinery of compulsory conciliation and arbitration set up by the Industrial Disputes Act.[35] This emphasis on law as a solution to the labour problem has, in turn,

> provided an easy and automatic alternative to both employers and workers to escape from their common responsibility of getting on well together. It gives an easy substitute for mutual negotiation and collective bargaining. It increased love for litigation among both parties. Legal compulsion might be an effective force, but it is a bad persuasive, and this has been amply demonstrated by the ever deteriorating industrial relations in this country.[36]

This statement, in the opinion of the present writer, goes to the heart of the matter. The problem of industrial relations is, at bottom, a problem in human relations, involving the conflicting ambitions of human beings. Law can provide the framework within which conflicts of interest can be ironed out, but it cannot impose industrial peace. The achievement of genuine peace requires mutual goodwill and a sincere desire to work out agreements equitable for all concerned. This goodwill, in turn, requires much greater understanding on the part of both management and workers of one another's problems and will not be achieved until greater contact between them is established. What the Royal Commission on Labour in India and Burma wrote many years ago could be said of the present situation:

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[34] Goyal, *Post-War Trends . . .* , p. 37. [35] *Ibid.*, p. 22. [36] *Ibid.*, p. 22.

> We believe that an important factor at work in creating industrial unrest in India is the lack of contact which too often exists between employers and employed. . . . In practically every centre and every industry the lack of contact and understanding is evident. . . .[37]

As the same Report observes, primary responsibility for remedying this situation rests with management. It is the entrepreneurs, after all, who should provide leadership in this regard, as in all other matters involving the efficient organization of the production resources at their disposal:

> In all cases it is of primary importance that those responsible for management should be both able and eager to secure contact as direct as possible between themselves and the humblest of their employees. . . .[38]

So far as the writer was able to observe, contact between management and their workers, in the sense of mutual knowledge and understanding is practically non-existent in the enterprises visited. As a group, the entrepreneurs interviewed take the view that "workers are a hopeless lot and nothing can be done with them—it's no use trying." One particularly candid plant manager stated it as his view that managers, and particularly foremen, have contributed much to the present state of unrest by the fact that they are simply not interested in their workers as human beings, have no interest whatever in their problems, and treat them accordingly.

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[37] *Report of the Royal Commission on Labour in India and Burma, 1929*, pp. 339–40. [38] *Ibid.*, p. 342.

Such a state of affairs is definitely a failure in one area of entrepreneurship, particularly in a small establishment of fifty or a hundred workers, where proprietors should be able to get to know their workers and their problems. Good relations do exist in a few of the enterprises under study. In one of these the goodwill seems to be due, in part at least, to the fact that the proprietor, a young graduate engineer, trains his own workers. In the process he gets to know them well. He thinks that one of the most important reasons for his lack of industrial relations troubles is that there is no union in his plant.

In another plant where relations are good there is no outside union, but a Works Committee has been formed, composed of an equal number of worker and management representatives. This Committee meets at least once a week to discuss problems or grievances which have arisen. A third proprietor succeeded in convincing his workers that they should drop their union membership by raising their pay, and since then he has had much less difficulty, at least on the score of labour disputes.

Other Labour Problems

In addition to employer-employee relations, the entrepreneurs under study have a number of other labour problems. The first of these is the shortage of skilled workers, with the concomitant problem of training workers fresh from villages without previous factory experience. It is the policy of the firms studied, except for certain jobs requiring some previous training, to recruit "raw hands" without factory experience. The reason is fear that a worker with factory experience may have learned too much about trade unions and agitation and thus "cause trouble" in the plant. These matters were discussed when the problems encountered by new enterprises in getting established were analysed in detail.[39]

All entrepreneurs complain of absenteeism. The writer was not able to check all the statistics on which entrepreneurs base their estimates of the rate of average daily absenteeism, but the available evidence indicates that it ranges, for different firms, between seven or eight per cent to twenty-two or twenty-three per cent of work-force.

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[39] See above, Chapter III, pp. 93 ff.

The problem is particularly acute around the major festival times and, in the Coimbatore area, around harvest time. The "raw hands," mostly from nearby rural areas around Coimbatore, and to a lesser extent in the Madras area, continue to live in their home villages. When needed at home during the particularly busy times of the agricultural year they simply leave their factory employment for a time and help with the farm work.

If employers go farther afield in their recruiting, they face even greater headaches of labour turnover, since first-time factory workers are apt to grow home-sick and return to their native place after some months. This "running away back to the village," as employers term it, is a major problem for one firm in particular, namely Firm 34. This enterprise is a brass-utensil manufacturing establishment near Madras. Of the firm's hundred employees, approximately one-quarter are "turners," highly skilled potters who, working with the traditional potter's wheel, turn out the clay moulds for the utensils. These workers are obtained from Chitoor District, over a hundred miles away, one of the main centres of the (factory) brass-utensil industry in South India. Firm 34, being the first enterprise of its kind in the Madras area, had no local pool of skilled workers to draw upon. There was no tradition of this type of work in the area. After the Chitoor turners have worked for a few months and saved a little money, they "run away to their native place" (since "they like it there," the entrepreneur explained). Twice a year one of the proprietor's sons must go to Chitoor, at the expense of considerable time and trouble, to recruit more turners. The firm has succeeded in getting one local worker trained in the art, but he has not been able to train others, so the firm remains dependent on the imported skilled labour.

Aside from special cases of this kind, labour turnover is not considered a troublesome problem by the entrepreneurs interviewed. Many said that, on the contrary, they wish they could get rid of certain workers! There is a feeling that the provisions of the Industrial Disputes Acts, discussed above, relating amount of severance of pay to tenure of service has reduced labour turnover. There are problems connected with the loss of certain types of skilled workers like head foundrymen, foremen, and other key personnel as new firms are established in the area, however. This question has been discussed above.[40]

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[40] See above, Chapter III, p. 95.

What are entrepreneurs doing to improve the situation in the matter of labour absenteeism? For the most part, they have adopted a defeatist attitude. A few reported that they have tried various types of incentive systems, such as an attendance bonus, but without notable success. A smaller firm which the writer visited, not included in the sample because of its small size, has, however, succeeded in improving attendance considerably through such a bonus. This factory makes tin cans and employs approximately twenty-five workers. Since production is on a belt-line basis, absenteeism is even more serious than for some other firms. The proprietor reported that he was able to reduce absenteeism almost two-thirds by introducing a system of double pay for the last three days of the month, if a worker had a record of perfect attendance up to that time. It is perhaps significant that this employer had noticeably greater contact with his workers and a more sympathetic attitude toward them than most of those interviewed. He mentioned, for instance, that one of the pleasures he gets out of running his own enterprise is the fact that he is "creating employment for some twenty families." It is probable that absenteeism, like other problems connected with the human resource of labour, is bound up with the degree of contact and mutual understanding which an entrepreneur can succeed in creating in his plant.

The Problem of Working Capital

Industrial enterprises require three different types of capital: (1) venture or risk capital for the initial establishment of the business; (2) funds for subsequent growth and acquisition of additional fixed assets; and (3) working capital for financing the day-to-day operations of the enterprise including purchase of raw material, meeting pay-rolls, and reserves for unforeseen contingencies.[41] Problems connected with the first two types of capital and the sources from which the entrepreneurs under study have actually raised initial capital and finance for subsequent growth will be analysed in detail in Chapters IV and V, where establishment and growth of enterprises are dealt with. The present section will confine itself to problems encountered by entrepreneurs in obtaining working capital.

[41] Cf. *Report on Small Industries in India* by the International Planning Team, the Ford Foundation (Government of India, Ministry of Commerce and Industry, 1955), p. 37.

Almost all firms reported that until the State Bank Pilot Scheme[42] went into operation in early 1957, they had difficulty in obtaining sufficient working capital. The exceptions are a few of the larger enterprises with well-established banking connections. The typical firm finds itself in the position summed up by one proprietor as follows: "Money for day to day operations is always short. We have a very hard time keeping an adequate balance in the bank for meeting our bills each month and for emergencies. It is a constant worry." The proprietor of this particular firm (Firm 15), however, is somewhat better situated than most, in having been able to borrow at times from some of the large companies with whom he has long-term contracts for supplying machinery parts. These companies have advanced funds on occasion for the purchase of raw materials so that their orders will not be delayed. Nevertheless, the enterprise operates continually on the proverbial financial shoe-string and each month sees a "photo-finish" between the bills to be met and the cash on hand. The situation is characteristic of the firms investigated.

This state of affairs is attributable to the interaction of a number of factors. Entrepreneurs have been unable (or unwilling) to build up sufficient reserves to take care of their working capital needs. Some firms have made small profits or suffered losses in recent years. This is true for example of the older producers of agricultural-processing machinery and a few others.[43] For most firms, however, the shortage of working capital and liquid reserves appears to be due to the desire for expansion. Profits have been ploughed back as fast as they have appeared, and in addition, as will be seen subsequently, entrepreneurs have drawn on fresh personal capital or borrowed to expand and diversify production.

It is easy to criticize this policy as unsound and dangerous, but the situation in which these entrepreneurs find themselves must be taken into account. Many are now operating in "sellers' markets" and are understandably anxious to obtain as large a share of that market as possible as long as the present state of affairs lasts. They also see many opportunities for new and profitable activities and are eager to exploit them before others move into the field ahead of them (as well as gain the advantages of diversification of production, and thus strengthen their enterprises against possible future slumps in activity or shifts in demand[44]). In addition, many see in the present high level of activity an opportunity for growth which may never return, since expansion of small enterprises must be largely self-financing, little outside capital being, as a general rule, available to them.[45]

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[42] See below, p. 141 ff.

[43] See below, Chapter VI, where the difficulties faced by a number of firms in the sample are discussed more fully.

These desires for growth and diversification are good in themselves, since they contribute to the rapid industrialization so badly needed in under-developed countries. The danger is, however, that chronic shortage of working capital and reserves will leave firms extremely vulnerable to a decline in general economic activity, growing competition and other emergencies. There is evidence that many of the firms under study are in a rather unsound financial condition and hence in a very exposed position. It will be interesting to see how many of them will survive in the years ahead.[46]

Neglecting for the moment the recently inaugurated programme of the State Bank, the enterprises under study reported three major

[44] As will be seen when the question of entrepreneurial mobility is dealt with in detail (Chapter vi), this motive is one of the main ones impelling entrepreneurs to diversify their activities.

[45] See below, Chapter v, pp. 153 ff.

[46] It must be conceded, however surprising as it may seem, that enterprises of the type included in the present study have thus far demonstrated an amazing survival power and durability. A comparison of listings of engineering-manufacturing establishments by name in the annual Factory Lists of Madras State reveals that since 1939 very few firms which have once reached an employment level of twenty or twenty-five workers have failed. Only four were discovered, two of them established since 1950. Some have declined to a very small size once again, after having reached the level of medium-scale industry (including one co-operative workshop), but they managed to avoid liquidation, some of them through two Wars, a depression, and a severe recession. In the recession of the early 1950's most of the firms investigated reported having an extremely difficult time, but all were agreed that practically no firms failed, a conclusion which concurs with that derived from the Factory Lists. The reasons for this durability of small enterprises would make an interesting study. The phenomenon appears to be due to the family and semi-family character of many of the enterprises as well as to the fact that proprietors frequently own a little land or have some business in addition to the engineering factory. When bad times strike they are thus able to support themselves and their dependents and to scrape together enough resources to keep their workshop afloat, although they may have to curtail operations drastically. Improved times find them still on the scene and ready to expand operations again. It would seem that this state of affairs must change, and is probably already changing, as the average size of enterprises grows larger. The larger the enterprise, the greater the overhead, and the more resources proprietors will need to avoid closing down during recession periods.

sources of credit for working capital: (1) commercial banks; (2) moneylenders and private bankers; and (3) friends and relatives. A few firms have been able to borrow at times from trade creditors such as suppliers of raw materials and dealers and large firms to whom they sell, but these are exceptional. Even more exceptional are two firms (Firm 17, a pump-manufacturer, and Firm 37, a manufacturer of buttons) who reported accepting deposits from the public. Such acceptance of deposits is a long-established practice in the textile industry of Bombay State but unusual in other branches of industry.[47] The two firms in question reported, however, that these deposits have not been an important source of finance.

Twenty-two firms reported receiving short-term credit from commercial banks, against raw materials or finished goods as security. Ten of these reported continuing arrangements with banks for key-loan over-draft facilities.[48] The remaining firms have relied chiefly on professional moneylenders and friends and relatives.[49] Many of these firms have attempted to secure bank credit but without success. Although proprietors did not so report, some have undoubtedly been refused because the bank did not consider them good credit risks. Others, established too recently to have won bankers' confidence in their business ability, have thus far been unable to develop banking connections. Only one entrepreneur reported that he had no desire to "deal with banks" and stated that he prefers to do all his borrowing from friends (fellow Chettiars) in his "native place."

Interest rates were reported as follows: Firms borrowing from commercial banks reported paying six or seven per cent per annum during 1956. Those who rely on moneylenders or friends and relatives reported paying not less than six per cent, and as high as twelve per cent per annum. Slightly higher rates were found by an investigator from the Small Industries Service Institute of Madras. According to this survey, which concentrated on enterprises much smaller than those included in the present study, rates of interest to small industrialists in Madras City were found to be as follows:

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[47] N. Das, *Industrial Enterprise in India*, (Bombay: Orient Longmans, 2nd rev. ed. 1956), pp. 40–1.

[48] Under this arrangement raw materials or goods are placed in the bank's godown (warehouse), which may be on the factory premises, the key being held by the lending bank.

[49] It is often difficult to determine whether the term "friend" designates a personal friend in the ordinary sense of the term or an unlicensed moneylender belonging to the same Community as the borrower. Entrepreneurs are, in general, reluctant to go into details regarding their sources of credit, and the writer thought it best not to pry too much into these matters. Consequently, the information gathered, is not as complete as he would have desired but is the best that could be obtained.

Table 28

RATES OF INTEREST ON LOANS TO SMALL INDUSTRIALISTS BY TYPE OF LENDER, MADRAS CITY, 1956

Type of lender	*Rates of interest range (percentage per annum)*
Moneylenders	6 to 24
Friends and relatives	6 to 12
Banks	6 to 8
Insurance Companies	6
Private bankers	"up to 12"
Partners and shareholders	6 to 9

SOURCE: *Report of Survey of Small Industries in Madras City* by the Government of India's Small Industries Service Institute (Madras) 1957 (unpublished), p. 21.

A somewhat lower structure of rates was found to prevail among the small engineering establishments of Howrah (a suburb of Calcutta):

Table 29

RATES OF INTEREST ON LOANS TO SMALL ENGINEERING ESTABLISHMENTS, HOWRAH, 1953

Source of credit	*Rate of interest range (percentage per annum)*
Moneylenders	2 to 10
Banks	6 to 7
Others	2 to 15

SOURCE: *Problems of Small Engineering Industries* (A Statistical Survey Report), (Bureau of Industrial Statistics, P-11, Mission Row Extension, Calcutta 1), 1953, p. 29.

The high rates of interest included in the first of these two reports (assuming that entrepreneurs have not exaggerated their problem) must be due to the inclusion of many small enterprises with presumably very poor credit rating. But the study carried out in Howrah during 1952, even allowing for the lower interest rates which prevailed during that period of recession in the engineering industries in India, reveals rates as low as two per cent. Either these rates apply to special loans by relatives or they are under-stated.

Although the rate structure is not excessively high, given the risks faced by small firms in an under-developed region, many proprietors must borrow at higher rather than lower rates in a given range. This fact contributes to their chronic shortage of working capital, since they borrow only when forced to, wait until the last possible moment, and pay back loans as quickly as possible. Hence the "hand-to-mouth" financial existence of most of the firms studied.

Lesser contributory factors aggravate the working capital problem. Fluctuations in the flow of raw materials have already been mentioned.[50] Many firms also reported that competition compels them to extend at least one month's credit to customers and even to large firms to whom they supply parts—for example, textile mills. In addition, many proprietors complain of delays in payment by customers, even when the credit period has expired.

Some of the worst offenders in this regard appear to be some Government agencies, such as Public Works Departments, and Government industries such as the Integral Coach Factory in Madras. Every proprietor doing regular business with Government complained of the "red tape" and long delays in securing payment for work done. The following situation is typical. Six weeks before the writer's first visit one of the firms visited had completed an order for the Integral Coach Factory and presented its bill for Rs. 16,000 as agreed in the contract. Six weeks after billing the Coach Factory the proprietors still had not received payment. In the meantime the Coach Factory had placed another order with the same entrepreneur valued at Rs. 70,000, on which it wanted quick delivery, and the proprietor was having great difficulty financing the purchase of the raw materials needed to begin work.

The preceding discussion has dealt with the working capital problems with which the firms under study have had to struggle throughout most of their existence. The recently inaugurated State Bank Pilot Scheme for Assistance to Small Industries, although it has not solved all their problems, has substantially helped many enterprises. This programme went into operation on an experimental basis in early 1957 in several industrial centres in India, including Madras and Coimbatore.[51] The object of the programme is to coordinate the activity of all the agencies set up to provide credit to small-scale industries, so that henceforth a firm need apply to one agency only for all its credit needs, whether short-medium- or long-term. For entrepreneurs, this agency is the State Bank. It is the Co-operative Bank if the applicant is a cooperative.[52] Under the Scheme the State Bank supplies key-loan over-draft facilities to small firms against raw materials and finished goods impounded in the Bank's godown, which is usually located on the premises of the borrowing enterprise, the key being in possession of the Bank's agent. Credit is granted for six months at a time, renewable at option, up to two-thirds of the value of the materials or goods put up as security. Interest currently being charged was five and one-quarter per cent per annum, computed on the running balance each quarter.

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[50] See above, pp. 104-5.

Technically, the Pilot Scheme, including the working capital accommodation, is limited to small industries in the sense defined by the Government of India's Development Commissioner for Small-Scale Industries, namely, at the time of this study, a firm employing less than fifty persons if working with power (one hundred if working without power) and having fixed capital assets of less than five hundred thousand rupees. In practice, however, the State Bank is interpreting this provision liberally and granting accommodation to firms whose capital assets are less than Rs. 5,00,000, without worrying about the number employed.[53] As a result, almost all the firms included in the present study are eligible for working capital accommodation, and the great majority have taken advantage of the programme and are finding it helpful, particularly as regards purchase of raw materials. When buying materials an enterprise now needs only one-third of the purchase price in cash and can borrow the remaining two-thirds from the State Bank, putting the materials up as security. Each time it draws on the stock deposited in the godown it must repay to the Bank only two-thirds of the value of the quantity withdrawn. This arrangement reduces the firm's need for a large sum of cash at any one time. Firms, of course, need working capital for purposes other than the acquisition of raw materials and holding of finished goods, so that most are still faced with shortage of working capital. Entrepreneurs reported in general, however, that the Pilot Scheme has eased their problem considerably and they hope that it will be continued. In the writer's opinion it is definitely a step in the right direction.

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[51] The source of the information which follows is the Agent of the State Bank of India, Coimbatore branch. The State Bank of India is the former Imperial Bank, nationalized in 1956. It is to be distinguished from the Reserve Bank of India, the country's Central Bank, although the two institutions now work in close cooperation.

[52] Upon receipt of application for credit of one type or another, applications are considered by the State (or Co-operative) Bank, the State Financial Corporation and the Director of Industries in mutual consultation, assistance then being granted by the appropriate agency alone or in collaboration with others. The Pilot Scheme operates in addition to the existing arrangements for obtaining credit, and applications can continue to be made to individual agencies empowered to grant credit, or to the Government under the State Aid to Industries Act.

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[53] The reason given by the Agent is interesting: " After all," he said, "we are a bank, not the Government. The main thing we are interested in is the credit-worthiness of the firm in question." This Agent was for many years employed by the Imperial Bank before its nationalization.

CHAPTER V

GROWTH OF FIRMS AND TECHNOLOGICAL ADVANCE

ENTREPRENEURS contribute to economic development not only by establishing new enterprises but also by expanding their firms and improving them technologically. Thus, they increase opportunity for employment, raise industrial production and make possible lower costs which permit a widening of the market for products of industry. Interest in the growth and technological improvement of the firms they have established, accordingly, are important criteria for evaluating entrepreneurial performance in under-developed countries.[1]

How have the entrepreneurs under study performed in these respects? Have they been interested in developing their firms into larger units, and how well have they succeeded? Have they been willing to plough back earnings to this end, or have they been interested only in "taking out" of the enterprise, content to have it drift along on the small scale on which it was founded? What patterns of growth can be discovered, and what factors assist or impede the growth of small firms of the types under study? These questions will be taken up in the present chapter.

I

GROWTH OF FIRMS

IT should be mentioned at the outset that the data which the writer was able to gather on growth of firms are not as complete as he would have liked. Due to incompleteness of firms' records, the long delays involved in gaining access to them, and the danger of arousing suspicion by being too inquisitive, figures only for initial and present employment and investment were gathered. Yearly data over the life of the firm would, of course, have been preferable, but were unobtainable for the reasons just mentioned. It was possible, however, to fill in to some extent the year by year picture of growth by using employment figures for intermediate years, obtained from records in the Office of the Chief Inspector of Factories. These records were also a check on initial investment figures, often quoted from memory by proprietors since records were not kept during the early years of the firm, or were not at hand in the office. Employment figures, used in conjunction with data supplied by entrepreneurs, provide a reliable, if rather general, picture of the course of each enterprise's growth.

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[1] See above, pp. 10–11.

In the discussion which follows, considerable stress has been laid on employment as a measure of growth, chiefly because the employment data are more complete. But even if yearly investment figures had been available it would still be necessary to lay heavy stress on the employment picture. In under-developed countries it is possible for small enterprises to expand considerably with very little change in investment. One reason is the labour-intensive technology which predominates. Another is the desire for self-containment, discussed at the end of Chapter III, by reason of which even small firms tend to establish themselves with excess capacity. The result is that a firm may grow for some time merely by taking on more workers and with very little change in fixed capital. Several firms in the sample grew in this way during the War years. Both Firms 1 and 2 reported that during the War they increased their work-force (single shift) by approximately thirty per cent with almost no change in fixed capital. Additional machines were not available, and production was expanded by introducing more labour-intensive methods, such as the bending and shaping of metal by means of hammers and other hand tools, a common sight in most of the establishments studied even at the present time.[2] These considerations indicate the appropriateness of using employment as an important measure of size when dealing with small- and medium-size enterprises in under-developed countries. They are also a reminder of the important role these firms can play in alleviating unemployment in capital-scarce countries.

In addition to employment and investment figures, it would also have been desirable to gather yearly production figures for each firm. Unfortunately these were unobtainable. Current figures in terms of annual turnover were available and in fact obtained, but in the absence of data for earlier years they are of no use as a measure of growth. The result is that in tracing the growth of the firms studied we are forced to rely on a comparison of initial and present employment and investment, plus employment data for intermediate years.

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[2] While the type of enterprise studied may grow by increasing the labour/capital ratio, the converse is not likely to be true. An additional machine such as a lathe or drill means hiring an additional operative, so that when capital is expanded employment also rises. Only four of the fifty-two enterprises were found to have reached a stage of development where machines had begun to displace workers. For details, see below, pp. 165–6.

The Facts Regarding Growth

Turning now to the data bearing on the growth of the enterprises under study, it can be said that entrepreneurs have, in general, been quite active in developing their enterprises into larger units. As mentioned in Chapter III, the great majority (forty-four of the fifty-two firms) were established as small units and grew over the years into the medium-size firms which they now are. Of these forty-four, many have had extremely humble beginnings, as seen in the case-studies. Actual figures for all firms were not obtainable, but averages computed from available data give a general indication of overall growth by categories of entrepreneurs.

It is evident that entrepreneurs have been interested in developing their firms and fairly successful in doing so. All firms have grown to some extent, at least from small to medium size, as can be seen from the more detailed table at the end of the chapter.

The War was a major factor in the growth of only a few firms. Many of the firms established before the War experienced a War time boom, but only a few have benefited permanently from it, as seen from Table 31 on page 148.

As this table reveals, two of the thirteen firms established up to 1940 are approximately of the same size as they were on the eve of the War (Firms 4 and 5), and four are smaller now than they were then (Firms 1, 2, 3 and 13). The four firms just mentioned experienced a considerable upsurge of activity during the War, but the boom proved temporary.[3] Four other firms (Firms 8, 9, 11 and 12) are at present much larger than they were in 1939, having

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[3] Firm 3 shared in this boom during the first years of the War but suffered serious reverses around 1944, for reasons the writer was not able to ascertain. Since the end of the War the firm has been under the management of the son of the founder and has been growing steadily. For details, see below, Chapter VI, pp. 181–2.

Table 30

COMPARISON OF INITIAL AND PRESENT EMPLOYMENT AND INVESTMENT AND AVERAGE AGE OF FIRMS BY CATEGORIES OF ENTREPRENEURS

Entrepreneurial category	*Average age of firms (years)*	*Average employment*[a]		*Average investment*[b]	
		Initial	*1956*	*Initial* Rs.	*Dec. 31, 1956* Rs.
Rural artisans[c]	38	..	104[d]	..	3,37,200[d]
Domestic merchants	16	27	81	49,000	2,31,000
Factory workmen	6·7	19	75	30,250	1,91,500
Graduate engineers	12·4	18	70	39,438	2,06,667
Importers	2·4	34	101	2,58,334	4,40,667
Manufacturers	7	29	82	85,000	3,44,250
Miscellaneous	9	23	96	22,214	2,15,556

[a] Employment figures refer to average number of workers in addition to proprietors employed per day during first year of operations and during 1956, averaged for firms in each category.

[b] Investment includes both fixed and working capital, at the time operations were begun, and as of the end of 1956, averaged for firms in each category.

[c] Actual figures relating to initial size in most cases not available, but these firms began on the smallest scale of all groups. (See Chapter III, Case-studies.)

[d] If Firm 6, which is much larger than the rest in this category, be excluded, the more representative averages of 76 workers and Rs. 1,48,500 are obtained for employment and investment respectively.

grown rapidly during the War, but are smaller today than they were at the end of the War. Only three firms (Firms 3, 6 and 7) have grown steadily since the end of the War. For the last two of these, war time profits laid the basis for postwar expansion, which has been considerable and is continuing.

Most of these thirteen oldest firms, accordingly, give every appearance of having reached the limit of their growth. Seven of them are definitely in trouble and faced with the prospect of decline, or are already declining.[4] The reasons for their difficulties, and the ways in which their entrepreneurs are attempting to cope with

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[4] Namely, Firms 1, 2, 5, 8, 11, 12 and 13. Two firms established during the War years (Firms 14 and 20) are in a similar situation.

Table 31

AVERAGE DAILY EMPLOYMENT IN PREWAR FIRMS DURING FIRST YEAR OF OPERATION, 1939, 1945 AND 1956

Ident. no. of firm	*Year estab.*	*Average daily employment*			
		Initial[a]	*1939*	*1945*	*1956*
1	1884	..	83	120	72
2	1916	..	71	115	52
3	1921	..	60	41	55
4	1922	20	125	120	144
5	1923	..	66	68	67
6	1924	..	21	63	218
7	1926	..	56	74	89
8	1934	12	63	216	122
9	1935	..	..	142	87
10	1935	..	..	78	100
11	1939	18	18	66	53
12	1939	29	29	189	90
13	1940	79	..	150	69

SOURCE: Data provided by entrepreneurs and factory lists for respective years.

[a] Actual figures not available in most cases, but it is certain that these firms began on a very small scale as repair and odd-job shops. See Chapter III, Case-studies.

them are discussed in detail below.[5] Except for two firms established during the War years (Firms 14 and 20), the remaining thirty-nine enterprises in the sample have grown more or less steadily since establishment and are still developing.

Patterns of Growth

Two major patterns of growth are ascertainable among the fifty-two firms under study. In one pattern, which will be designated "Pattern I," growth has been discontinuous. A clearly defined break or discontinuity is evident in the development of the enterprise, of so pronounced a character that it must be considered as reflecting a fundamental reorganization of the firm's activities. In Growth Pattern II this clearly defined discontinuity is absent. Growth takes place more or less steadily with no clearly marked turning-point in the firm's development.

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[5] See Chapter VI, *passim*.

Pattern I is characteristic of, although not confined to, enterprises which have been established as small repair and odd-job shops. Pattern II is characteristic of firms which have been founded as manufacturing units and those which have begun life on a relatively larger scale than others. These firms, are, in turn, those established by merchants and others with an already established business, and hence with access to larger amounts of capital. Available data on initial size indicate that Pattern I firms have been established, on the average, with ten employees and an initial investment of approximately Rs. 17,000. Pattern II firms have begun life, on the average, with 19 employees and approximately Rs. 64,000. Pattern I firms have taken an average of 7·5 years from establishment to reach medium size, and Pattern II firms 5·1 years. Twenty-three enterprises have developed according to Pattern I, and twenty-nine according to Pattern II. The table on next page is a convenient method of classifying the fifty-two firms under study by growth pattern, background of entrepreneur and date of establishment.

As seen from this table, there has been a distinct falling off in the percentage of Pattern I firms in the latest period, 1951 to 1956. The chief reason is the fact that workmen-entrepreneurs who have entered industry during this period have reached medium size by a process of continuous growth and thus differ from the counterparts of earlier periods.

Analysis of Growth Pattern I. The discontinuity which is characteristic of Growth Pattern I is preceded by a period of gradual, continuous growth, so that there are three stages in the firm's development. In the first stage, the firm grows slowly, by small increments, by adding a machine now and again as capital becomes available. This period may extend over many years. All the firms which developed according to Pattern I reported that during this stage expansion was financed chiefly by ploughing back earnings, plus such small borrowings as could be made from time to time from friends and relatives or, occasionally, from outside moneylenders. The second stage consists of the reorganization discussed below. In the third stage, growth may again settle down to the slow gradual pace of the first stage, or the firm may move rapidly ahead, possibly with other major discontinuities.

The discontinuity or reorganization which is the characteristic feature of Pattern I may take three principal forms, found separately

Table 32

CLASSIFICATION OF FIRMS BY GROWTH PATTERN, TYPE OF ENTREPRENEURSHIP AND YEAR OF ESTABLISHMENT

Type of entrepreneur	*Growth pattern*	*Individual firms Ident. No.*				*Totals*	
		Pre-War	*War years*	*1946–50*	*1951–56*	*Pattern I*	*Patter II*
I. Rural Artisans	I	1–2–6		33		4	1
	II	3					
II. Merchants	I	8			42	2	8
	II	4–5	13–14–20–21	28–34			
III. Workmen	I		17–18	31		3	3
	II				40–47–48		
IV. Engineers	I		15–16–22	26–30–35		6	6
	II	10–11	19	23–36	52		
V. Importers	I				44	1	4
	II			38	43–45–46		
VI. Manufacturers	I			37		1	3
	II			27–29	51		
VII. Miscellaneous	I	7–9		24–32–39	49	6	4
	II	12		25	41–50		
TOTALS	I	6	5	9	3	23	29
	II	6	5	8	10		

or in combination: (1) transition from mere repair and odd-job work to manufacturing proper; (2) the building of a new and larger plant for the purpose of expanding manufacture; and (3) change-over to a new line of manufacture. The reorganization involved in each of these is a major turning-point in a small firm's history, and has great influence on the rate and nature of its future development. The reorganization typical of this pattern does not always immediately elevate the enterprise into the medium-scale category. But even when it does not, it almost always puts the firm into position to reach medium size shortly thereafter. This fact is brought out by the comparison of dates on page 152 (Table 33).

Three sub-patterns are observable in the development of Pattern I firms.

1. Fourteen firms in the sample[6] were established as small-scale repair and odd-job shops, grew little during their first period of existence, and were then reorganized as manufacturing units. None of these firms had more than twenty employees at the time the shift to manufacture took place. Reorganization was on a small scale. In some cases it doubled employment, but in no case was the firm carried automatically into the medium-scale category. In general, these firms grew rapidly after reorganization as manufacturing units, at least seven of them reaching the medium-size category within three years.

2. Four firms[7] began as repair and odd-job shops, but differ from the fourteen firms just discussed in that they gradually evolved into manufacturing units during the first stage of their existence, usually by the addition of spare-parts manufacture as a major line alongside repair work. At a later point they reorganized for the purpose of expanding and to enter new lines of manufacture. Two of these firms (Firms 6 and 9) had reached medium size before reorganization. The other two were put into the medium-scale category by the reorganization itself.

3. Four firms[8] began as manufacturing units in the first instance, and later reorganized in order to expand and enter new lines of manufacture. Three of these firms began life as medium-size units, and the fourth reorganized as a medium-scale firm one year after establishment.

[6] Firms 1, 2, 7, 8, 16, 17, 18, 30, 31, 32, 33, 35, 39 and 44.

[7] Firms 6, 9, 15 and 42.

[8] Firms 22, 24, 26 and 37.

Table 33

PATTERN I FIRMS BY YEAR OF ESTABLISHMENT, YEAR OF RE-ORGANIZATION AND YEAR IN WHICH MEDIUM SIZE WAS REACHED

No. of firm	*Year estab.*	*Year re-organiz-ed*	*Year medium size reached*	*Age at re-organiza-tion (years)*	*No. of years after reorganiza-tion medium size reached*
1	1884	1916	1939[a]	32	23[a]
2	[b]	1916	1939[a]	. .	23[a]
7	[b]	1926	1939[a]	. .	13[a]
8	1934	1936	1939	2	3
16	1934	1942	1945	8	3
17	1942	1947	1949	5	
18	1944	1948	1949	4	1
30	1947	1952	1956	5	4
31	1949	1955	1956	6	1
32	1949	1955	1956	6	1
33	1944[c]	1949	1955	5	6
35	1940	1949	1955	9	6
39	1947	1951	1956	4	5
44	[b]	1953	1955	. .	2
FIRMS ELEVATED TO MEDIUM SIZE BY REORGANIZATION					
15	1941	1947	1947	6	
22	1945	1946	1946	1	
42	1952	1956	1956	4	
49	1947	1956	1956	9	
FIRMS WHICH HAD REACHED MEDIUM SIZE BEFORE REORGANIZATION					
					Age when medium size reached
6	1924	1948	1946	24	22
9	1935	1946	1943	11	8
24	1945	1946	1945	1	[d]
26	1947	1954	1953	7	6
37	1949	1955	1949	6	[d]

[a] Exact year not ascertainable, but found in medium-size category in year indicated.

[b] Exact year of establishment not ascertainable. See Chapter III, Case-studies for such details as are known.

[c] Was inherited by present proprietor in year indicated. Exact year of establishment as rural blacksmith shop not ascertainable.

[d] Established as medium-scale enterprise.

Firm 49 represents a special case of "interrupted growth." This enterprise was started on a very small scale as a small repair shop. After a few years the founder abandoned the enterprise to enter Firm 33 as a partner. Four years later he withdrew from the partnership, which in the meantime had grown considerably, and used his share of the proceeds to launch his own enterprise once again, on a much larger scale than his first venture.

Of the eighteen firms in sub-patterns 1 and 2, five began as repair and small manufacturing units as integral parts of a larger (trading) company, before being set up as distinct entities. They are Firms 9, 16, 35, 42 and 45. The conclusion which emerges is that there is no single form of development for the small firm. A variety of roads to the medium-scale category are open to it.

Methods of Financing Growth

Pattern I Firms. As mentioned earlier, the reorganization which is characteristic of Growth Pattern I is usually a decisive turning point in the firm's history, and of great importance for its future development. Analysis of the ways in which such reorganization has been financed, accordingly, is necessary for an understanding of their problems of growth. Entrepreneurs are reluctant to talk about financial matters to strangers, but some general information was obtainable regarding main sources of capital. Except in a few cases it was not possible to ascertain the actual amounts raised by entrepreneurs from the various sources, and the writer judged it better, given the scope of the study, not even to inquire into the matter lest suspicions be aroused. In most cases it was possible to determine whether a given source was a major or minor source of finance, without going into the actual amounts involved.

All twenty-three firms which have developed according to Pattern I reported that during the period preceding reorganization growth, such as it was, was financed mainly by reinvestment of earnings supplemented by occasional borrowings from friends and relatives. In contrast, the sources of finance for reorganization are given in Table 34 on page 154.

Of the six firms which drew on new equity capital, two (Firms 17 and 33) reorganized as partnerships, three (Firms 8, 22 and 37) as Public Limited Companies, and one (Firm 26) sold a controlling share to Firm 22 with which it merged as a branch.

Table 34

MAJOR SOURCES OF FINANCE FOR REORGANIZATION OF PATTERN I FIRMS

Source of finance	Number of firms [a]	Individual firms (by number)
1. Taking in partners or shareholders	6	Firms 8, 17, 22, 26, 33, 37
2. Borrowing	6	Firms 15, 18, 31, 35, 37, 49
3. Fresh capital supplied by proprietors	7	Firms 7, 9, 16, 24, 30, 42, 44
4. No important source besides earnings	4	Firms 1, 2, 6, 39
5. Financed by a larger company	1	Firm 32

[a] Total adds up to 24 because of presence of Firm 37 in two categories.

Of the six which reported borrowings as a major source of finance for reorganization, four stated that the loans had been obtained from friends and relatives (Firms 15, 18, 31 and 49). Of the other two, Firm 35 reported receiving a bank loan of Rs. 1,00,000,[9] and Firm 37 secured a loan of Rs. 30,000 from the Government of Madras to help finance the building of a new plant. Firms 17 and 37 reported that they also accept deposits from the public, but these deposits, reportedly not very large in amount, appear to have served as a source of working capital rather than for expansion purposes. These are the only two firms which reported engaging in the practice, a long-standing custom in the textile industry of Bombay State.

Of the seven firms which reported fresh capital supplied by the owners as the source of funds for reorganization, four stated that the funds came from earnings of another business owned by them, the rest from land revenues or personal savings.

[9] This figure seems high, but there was no way of checking it. The plant in question is a radio manufacturing establishment, set up after the proprietor (a graduate engineer) was well established in the radio sales and service field and had developed good business connections. It may be that he was able to persuade some bank that the investment was a sound one. This proprietor also reported that subsequent to the bank loan he also secured a loan of Rs. 25,000 from the Government of Madras for purchase of additional machinery.

Firm 32 is unique in that it was financed by a large dealer in imported and domestic engineering goods looking for a supplier, and Firm 26 is the only merger encountered. Before carrying the discussion of Pattern I firms further, it will be advantageous to compare the methods of financing engaged in by firms which have developed according to Growth Pattern II.

Pattern II Firms. It is not possible to distinguish any clearly defined turning-point in the growth of firms which have developed according to Growth Pattern II. Their growth into medium-scale units has been a continual and gradual process since their establishment. As noted above, these firms have been established on a larger scale, on the average, than Pattern I firms. Unlike the latter, all of them have also been founded as manufacturing units (including firms engaged in assembly in that category) and not as repair and odd-job shops.

All these firms reported that the main source of expansion has been re-investment of earnings. In addition to earnings, the following sources of capital have been important in financing their growth.

Table 35

MAJOR SOURCES OF FINANCE FOR DEVELOPMENT OF PATTERN II FIRMS

Source of finance	Number of firms [a]	Individual firms (by number)
1. Taking in partners or shareholders	1	Firm 4
2. Borrowing	3	Firms 19, 25, 28
3. Fresh capital supplied by proprietors	13	Firms 5, 11, 13, 21, 23, 27, 29, 45, 46, 47, 48, 50, 51
4. No important source besides earnings	6	Firms 3, 12, 20, 36, 40, 43
5. Unascertainable	4	Firms 10, 14, 34, 41

[a] Total adds up to twenty-seven only because two firms (Firms 38 and 52) have undergone practically no expansion.

The one firm among these twenty-nine (Firm 4) which took in new equity capital converted from a single proprietorship to a

Private Limited Company. Shares were sold to approximately twelve persons, most of whom, if not all, were relatives of the original proprietor. The firm did not raise new capital to finance any particular act of expansion or reorganization, and hence belongs in the present category and not in Pattern I.

Of the three firms which relied on borrowed funds as an important source of finance for expansion, one secured a loan from Government (Firm 28), one from a bank (Firm 19) and the other (Firm 25) from relatives and friends.

Six of the thirteen firms reporting fresh capital supplied by proprietors reported that they drew on earnings of another business owned by them, three on earnings from land, and the rest on personal funds.

Comparison of Pattern I and Pattern II Financing. Comparison of the relative importance of each source of finance in the growth of Pattern I and Pattern II firms is facilitated by the following table, which summarizes the data for both groups of firms.

Table 36

MAJOR SOURCES OF FINANCE FOR PATTERNS I AND II FIRMS COMPARED

	Number of firms	
Sources of finance for growth	*Pattern I*	*Pattern II*
1. Taking in partners or shareholders	6	1
2. Borrowing	6	3
3. Fresh capital supplied by proprietors	6	13
4. Financed by a larger company	1	..
5. No important source besides earnings	4	6

It is evident from this comparison that taking in of partners and shareholders, as well as borrowing, are much more important sources of finance for expansion in the case of Pattern I firms than in the case of Pattern II firms. This is undoubtedly because the former firms were in need of a lump sum which was large relative to the size of the firm to finance the reorganization which played so important a part in their growth. Since Pattern II firms were established as larger units and grew more gradually and continuously, they were able to finance themselves to a greater extent. It is significant, however, that only six Pattern II firms were able to do so exclusively out of earnings and that nearly half relied on fresh capital supplied by proprietors.

Fresh capital supplied by proprietors from land or some other business owned by them or from personal savings is the most important single source of finance for the growth of the small firms studied, twenty of the fifty-two reporting this as the main source of funds for expansion. When such funds are lacking, firms desiring to take a sizable step forward are forced to borrow, if they are able to do so, or share ownership with others. The only source of loans open to them, generally speaking, are friends and relatives. Bank financing is conspicuous by its almost total absence: of the fifty-two firms only two were able to secure loans from a bank. The reason invariably given by others for failure to use bank financing was inability to meet the security provisions required by banks. Only four firms secured loans from Government for expansion. Of three others (Firms 8, 13 and 33) who reported that they had attempted to secure Government financial aid, two reported refusal of Government to grant the loan sought, and the third considered the security provisions required by the Government excessive. The usual reasons given by other firms for not seeking Government loans were, first, the "red tape" and delays which such procedure would involve—(one firm which did receive a loan maintained that negotiations took full two years and involved numerous trips to Madras which consumed a great deal of time)—and, secondly, fears that "too much inspection" would follow upon acceptance of Government loans. The firms which have secured such loans, however, do not feel excessively burdened by Government requirements regarding inspection.

The conclusion which emerges is that entrepreneurs engaged in operating small firms of the type studied must, as a general rule, provide their own finance for expansion or be willing to take in partners or shareholders, assuming they can find them. The only practicable source of borrowing open to them, as a group, is borrowing from relatives and friends. Since the amounts thus available are rarely large, reliance on this source of finance means that the firm's growth must necessarily be by small increments, and a slow process. When to this picture is added the typical reluctance of small entrepreneurs in industrially backward areas to share ownership with others,[10] it becomes clearer why firms of the type under study do not grow larger or more rapidly than they do.

Factors in the Growth of Small Firms: Comparison with a North Indian Study

The finding that forty-four of the fifty-two firms under study were established as small-scale units and were developed over the years by their entrepreneurs into medium-scale enterprises appears to contradict the findings of an earlier study made in North India by James McCrory. The purpose of that study was "to discover whether or not there are typical patterns of growth in the small machine industries of a North Indian town, and to isolate, by comparing the case histories of individual enterprises, the factors that seem most commonly associated with growth, decline or stagnation."[11] McCrory's conclusion was that although the small industrialists he studied are good industrialists by most standards, they do not grow and prosper, but subsist, or frequently fail and start over again.[12] He finds a pattern of growth among the enterprises studied, but it is a pattern of "growth and decline, always within the 'small-scale' confines and never quite breaking outside."[13]

He finds the chief cause of this pattern of frustrated growth to be the financial vulnerability of the small enterprise:

> The immediate cause of business crisis is invariably loss of working capital. It can be lost in a variety of ways—through illness, a slump in the market, failure of a machine to sell, competition, the defection of a partner, theft, any sort of short-term emergency.
>
> But the craftsman's perennial shortage of capital lies at the root of it all, a shortage that shows up, without exception, as a shortage of working capital . . . and more often than not, a total lack of reserves.

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[10] This reluctance was also noted by McCrory, *Small Industry in a North Indian Town* . . ., pp. 26-7. It is founded on a general suspicion of outsiders, as well as the belief that quarrels are likely to develop and result in the break-up of the partnership. [11] *Ibid.*, p. iii.

[12] *Ibid.*, p. 6. For his criteria of "good industrialists," see above Chapter I, p. 10. [13] *Ibid.*, p. 3.

> It is good that the craftsman can start out on a shoestring, admirable that he is willing to. But the fact that it *is* a shoestring keeps him vulnerable, from the moment he sets out, to the first short-term emergency that comes along. Sooner or later one does and he has no defence against it. If there is any single reason why the small industries of the craftsman-entrepreneur do not grow, this is it.[14]

This inability to achieve the sounder financial position needed to guarantee the small industrialist's survival in time of crisis is related to the very small scale on which the entrepreneurs studied by McCrory began. They have started,

> . . . on the smallest of scales: more often than not, at the very bottom in a one or two-man shop, working on rented machines. He may grow rapidly indeed—but he begins with further to go.
>
> Once in business, the craftsman faces other problems. His biggest need is capital. He is now in a position to accumulate it through profits. His rate of profit may be high. He may maximize it by working 16 hours a day. But precisely because his scale of operation is small, his quantity of profit is small and his rate of accumulation, relative to the things he needs, discouragingly low.[15]

The result is that these small industrialists never succeed in developing their firms into well-established medium-scale enterprises. They have "all the qualities of good entrepreneurs except success."[16]

Why, then, should so many of the fifty-two medium-scale firms of the present study be "small firms grown up" while McCrory's small firms have not grown? Examination of this question may throw additional light on the factors which influence the development of small enterprises.

At first thought, the explanation might seem to be the fact that the enterprises included in the present study are different in character from those studied by McCrory. For example, they may have been established on a small scale merely for the sake of caution, by men who possessed capital to begin larger firms. Their growth may thus be due to the greater resources behind them. This explanation

[14] *Ibid.*, p. 19. [15] *Ibid.*, pp. 19–20. [16] *Ibid.*, p. 3.

is true of some firms among the fifty-two. It was seen in the preceding section that twenty of them owe their expansion to capital supplied by proprietors from personal funds or income from land or another business owned by them. At least twelve firms in the sample, however, appear to be comparable in every way with McCrory's ten small enterprises.[17] They are the five firms founded by rural artisans (Firms 1, 2, 3, 6 and 33), four of the six founded by former factory workmen (Firms 17, 31, 40 and 47),[18] and Firms 15, 39 and 49, enterprises established by three engineers, a salesman, and the son of a cultivator respectively.[19] All these entrepreneurs had very limited resources at their disposal and launched their enterprises on a very small scale. Nine of the twelve began as small repair and odd-job shops. Their proprietors have succeeded in building them up into medium-scale units, however. These entrepreneurs have all the qualities of good industrialists enumerated by McCrory, and success as well.

A problem in comparing these firms with McCrory's is the fact that both groups are biased samples, but biased in opposite directions. McCrory deliberately concentrated on small enterprises which have not grown, that is, on units employing not more than twenty workers.[20] The firms of the present study were selected because they were of medium size, that is, employing at least fifty persons. To construct an unbiased sample one would have to select a number of firms all of which were of the same size in a certain past year, and then analyse the course of their development since then.

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[17] Of the 17 firms included in his study, McCrory classifies only 10 as small, and the remaining seven as medium-scale. Three of the seven "medium-size" firms, however, fall within the definition of "small" as laid down at the time by the Development Commissioner for Small Scale Industries in India, namely, a firm which employs less than 50 workers with power or 100 without power and whose fixed capital does not exceed Rs. 5,00,000. Although he notes this definition, McCrory does not follow it strictly but adopts "special definitions for the purpose of the study" (p. iii, footnote). His criterion for distinguishing between small- and medium-scale enterprise is nowhere precisely stated, but it appears that type of entrepreneurship has been included in the definition as well as size of firm, since enterprises established by merchants or others presumably in possession of capital have been relegated to the medium-scale category. This fact has been kept in mind in selecting the twelve firms of the present study for comparison with the ten classified by McCrory as small.

[18] Firms 18 and 48 have been excluded because of the presence of a financial partner. Attention is also called to the fact that Firm 47 is a second enterprise established by the founder of Firm 17.

[19] For details on the origin of these twelve firms see above, Chapter III, Case-studies, *Group 1: Rural Artisans* and *Group 3: Factory Workmen* for the first nine firms mentioned; *Group 4: Engineers* for Firm 15; and *Group 7: Miscellaneous* for Firms 39 and 49.

[20] *Small Industry in a North Indian Town* . . ., p. iii.

The twenty-two firms under discussion do not fulfil that condition. They do approximate it to some extent, however. Although a few of the writer's firms are considerably older than any of McCrory's, the time-distribution of establishment dates in both groups is, in general, quite similar. Of McCrory's ten firms, two were established during the early forties, one in 1946, two in 1948, and five since 1951. Of the writer's twelve firms, four were founded before World War II, two in the early forties, two in 1949, and four since 1951. The initial size of firms in the two groups are also quite similar. Three of the four prewar firms in the writer's sample, moreover, had reached medium size by 1939.

It is clear that the success of the writer's firms is not explained by the fact that they have had more time than McCrory's to grow. Moreover, it is evident that McCrory's firms, as he points out, are not growing at all. In 1955 when his study was made, average employment per firm was approximately five workers. The twelve firms of the present study began life with an average of eight workers per firm, and today all have more than fifty.

A tempting hypothesis is that the difference is due to a difference in economic environment. It is well known that small enterprises are influenced in decisive ways by general economic conditions, particularly in their immediate locality, and especially by the state of affairs in the markets in which they are selling. The twelve firms of the present study are located in areas undergoing considerable development,[21] and are in industries faced with expanding markets. Ten of these firms are in only two industries: manufacture of power-driven pumps (five firms), and the steel fabricating and structural field (five firms). Eight of them are located in the vicinity of Coimbatore where a major expansion of the textile industry is under way.

In contrast, the two remaining firms (Firms 1 and 2) have not only ceased to grow, but are declining. They are producers of traditional agricultural and processing machinery, such as rice-hullers and spare parts. Both were larger in 1939 than they are at present.

[21] See above, Chapter II.

Both firms achieved their growth into medium size during the 1930's when the number of rice mills was increasing in Madras State. This expansion has come to an end in recent years due to Government policy restricting licensing of new rice mills.[22] Both firms are located in Madras.[23]

The fact that outside capital has been much less important in financing the growth of these twelve firms than reinvestment of earnings also supports the view that their success is due in large measure to favourable economic environment. Profits must have been large, a circumstance which points to very favourable market conditions. Seven of the twelve reported that reinvestment of earnings was the only important source of finance for growth, and the other five that reinvestment was a significant factor.

Several firms, however, owe their rapid growth to willingness to share ownership with outsiders. Firms 17 and 33 broke through the "size barrier" by taking in partners. Both partnerships were short-lived, but their disintegration resulted in the founding of Firms 47 and 49. Thus, four medium-scale units are now in existence where formerly there were two small enterprises.

Although it helps explain the success of the writer's twelve firms, the hypothesis of economic environment does not, unfortunately, account for the lack of growth of McCrory's. He does not present a detailed picture of economic conditions in "Chopur," the fictitious name used to designate the town where his firms are located. The writer has been informed, however, by one who knows the actual locale, that "Chopur" is in reality an industrial suburb of an important city in North India where recent industrial expansion has been comparable to that of Madras and Coimbatore.

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[22] This policy is aimed at encouraging the formation of cooperative societies for hand-pounding of rice, in an effort to alleviate rural unemployment. As a consequence, demand for rice-milling machinery has fallen largely to the replacement level, with resultant depression in the industry. Firm 2, founded in 1921, was also originally a producer of rice-hullers and parts, but was rescued from serious decline after the War by a successful programme of diversification which has gradually converted it into a producer of gas-burners and structural shapes. For details, see below, Chapter VI, Agricultural and Processing Machinery, pp. 181–2.

[23] The fact that eight of the ten firms doing well are located in the vicinity of Coimbatore and not Madras does not seem to have special significance. The reason for raising the question is the fact that the engineering industry around Madras is dominated to a much larger extent by large firms than in the Coimbatore area. The evidence does not support the view that competition from large firms has generally inhibited the growth of small units. The difficulties of Firms 1 and 3 are adequately accounted for by the present depressed state of their market, and, in fact, no large competitors are operating in their industry. Firm 3, also located in Madras, has, moreover, succeeded very well in the structural field, an industry in which it has several large competitors. Firm 15 has also been prospering in Madras as an ancillary producer for several of the largest companies.

Perhaps some quality of entrepreneurship lies at the root of the different performance of the two groups of firms. Chronic "shortage of capital" is not necessarily, but can be, a sign of poor management, or lack of resourcefulness on the part of entrepreneurs, rather than an independent cause of lack of growth. Conversely, success in overcoming the handicap may indicate a level of entrepreneurial ability which accounts for a firm's continued growth. Or the real explanation for the different findings may be the fact that McCrory's sample was selected according to one principle, and the writer's according to another.

On this inconclusive note the present discussion must end. One fact emerges clearly, however. Not all firms faced with capital shortage remain small. Some succeed in overcoming all handicaps and grow to medium size. The point is mentioned because the writer found some tendency in India to generalize from McCrory's findings, something the author of the study was careful not to do.

II

IMPROVEMENT OF TECHNOLOGY

DESIRABLE as it is that entrepreneurs show interest in developing their firms into larger units, mere growth is not enough. It is also important that industrialists improve the efficiency of their plants, raising productivity and lowering costs, so that maximum output might be obtained from scarce capital, prices be brought down and markets for the products of industry widened. Technological improvement being, then, one criterion of good entrepreneurship, the performance of entrepreneurs in this respect will now be examined.

The term "technological advance" usually connotes improvement in methods of production. In a broader sense it also includes improvement of marketing techniques and methods aimed at securing greater cooperation of workers and better labour relations. It is in this broader sense that the term is used throughout the following discussion.

Production Technology

Productivity in industry can be raised in two main ways, although the first of these may not produce the desired effect in under-developed countries because of the peculiar problems they face: (*a*) by the use of more modern equipment; and (*b*) by improvements in plant layout and organization of the productive process, permitting more efficient use of existing equipment, materials or labour.

The first method is usually not open to firms in under-developed countries, and particularly smaller enterprises. Equipment embodying the latest scientific developments is expensive, and beyond the means of most entrepreneurs in a poor country. It must also be imported from abroad, which often involves long delays in delivery. Shortage of foreign exchange and import-licence requirements add to the difficulties. Obtaining spare parts for imported machines of the latest type is also difficult and expensive, and technicians capable of servicing them are almost impossible to find.[24] The effect may well be to lower considerably the effective life of the equipment and add proportionately to its cost.

More fundamentally, machines and machine tools embodying a more advanced technology are often not suited to the particular needs of under-developed countries. They have been developed in advanced countries with their particular needs and factor-endowment in view and are consequently oriented toward economizing labour power. This labour-saving, often at the expense of high capital cost, may well be inappropriate in countries where cheap labour is the most abundant resource. A more labour-intensive technology is often more appropriate in these countries and the most economical way of industrializing. Nor do countries at an earlier stage of development need the high-precision machines required by the highly developed industries of more advanced countries.[25] These considerations apply with special force to smaller industrial units, such as those under study, engaged in producing the simpler kinds of industrial products. Many of the entrepreneurs visited criticized the fact that the newly established Government machine tool factory in Bangalore[26] produced only high-precision lathes, rather than simpler types at prices they could afford to pay. These lathes, which are admittedly of high quality, could be purchased out of stock when the writer was in India, since the demand for them is not high. At the same time the owner of the largest privately owned machine tool plant in India told the writer that he was two years behind in filling orders for his cheaper lathe, which is quite adequate to the needs of most Indian industries.

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[24] For the experiences of one of the firms under study in this regard, see above, pp. 103–4.

[25] Hans W. Singer, "Problems of Industrialization of Underdeveloped Countries," *Economic Progress*, pp. 180–4.

It is not surprising, therefore, that few of the firms under study have progressed technologically through installation of more modern equipment. When they can afford to do so, entrepreneurs purchase new rather than used equipment, and some technological gains are thus realized incidentally. In general, however, simpler "less modern" types are preferred. Proprietors are also reluctant to invest in expensive high-quality machines because of a widespread feeling (apparently well-founded) that "workers will only spoil them anyway." An agent of the German firm of Krupp told the writer that this obstacle is the major one he encounters in attempting to sell high-quality cutting tools to entrepreneurs.

Several firms in the sample, however, have recently installed advanced types of equipment which can be considered a major change in their production technology. One of these is Firm 6, a producer of power-driven pumps. It has installed an automatic moulding machine in its foundry section, thus speeding up casting operations, and reducing the work-force by approximately forty workers. Firm 23, a manufacturer of textile machinery, has also been experimenting with semi-automatic moulding.

Firms 24 and 37, both of which are button producers, have been progressively introducing the latest automatic machines and presses in connection with their shift from nut to plastic buttons. Firm 43, a fountain-pen manufacturer, was also equipping its new plant with automatic machines imported from Japan at the time of the writer's visit.

Two other enterprises (Firms 8 and 13) reported having drawn up plans for modernization involving installation of automatic labour-saving equipment, but they have been unable to raise the necessary capital. Firm 8 is an enamel-ware manufacturer and Firm 13 a producer of agricultural processing machinery and machine tools.

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[26] Hindustan Machine Tools Co. (Pvt.) Ltd. The factory was set up with Swiss technical assistance and went into production in 1956. Recently its product line has been diversified to include less costly machine tools in greater demand in India.

It is noteworthy that all these firms, with the exception of Firm 13, are among the largest in the sample, several of them close to the upper limit of 250 employees. This fact suggests that the type of unit under study does not begin substituting capital for labour until it has grown fairly large. Two forces have been at work to impel Firm 13 toward more capital-intensive methods, namely, competition from newer units using more modern equipment and constant labour trouble. Desire to reduce the work-force, and with it the dimensions of the labour problem, has also been a factor in the other firms' introduction of labour-saving equipment, except in the case of Firm 43, whose relations with its workers have been good. This point is significant. Industrial conflict and tension can off-set the advantages of a labour-intensive technology by adding many hidden costs to the wage bill, highlighting the importance of achieving good human relations in the industry of under-developed countries.

If there is little scope in small enterprises for technological improvement through installation of more modern equipment, the same cannot be said for the second method of raising productivity, namely, by improving plant layout and production methods. Experiments carried out by experts of the International Labour Office in several Indian industries show that substantial gains in productivity can be realized in this way with little or no capital expenditure. In their experiments in engineering plants in Calcutta, these experts concentrated on three main ways of raising productivity: (*a*) by making better use of existing equipment, e.g. by reducing machine idle time; (*b*) by more effective use of materials through reduction of press tool scrap and its use in another process, and by laying out production in a way which avoids storage between processes, thus reducing the volume of work in process; and (*c*) by making more effective use of labour, for example, by providing better working conditions to decrease the amount of heavy or ineffective work and by improving cooperation between workers and their supervisors.[27]

Some amazingly simple improvements produced extraordinary gains in productivity. Thus, in one plant a machine consisting essentially of a circular saw which rapidly rotated to trim metal castings was operated by two men. The machine's output was increased by twelve per cent merely by providing it with a guard. The guard permitted the men to move freely around the machine and probably reduced the operators' fear of the rotating saw. The experts are of the opinion that fear of high-powered equipment is rather common and that much can be done to raise productivity by training operators and better guarding.[28]

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[27] *Report to the Government of India on a Productivity Mission* (Declassified) (Geneva: International Labour Office, 1955), p. 11 (mimeographed).

Daily output of a cleaner of castings was increased by sixty per cent merely by giving him a bench and a chair for his work. Formerly, this worker cleaned the castings, weighing forty pounds, sitting on the floor. He now has the work placed for him upon the bench and cleans them seated in the chair. Average time spent on each casting has been reduced from 348 to 230 seconds, despite the fact that he now breaks the runners and risers on each casting in addition to cleaning it. The gain appears to be due to the fact that he experiences less fatigue and to the psychological effect of better working conditions.[29]

Substantial gains have also been realized by such elementary improvements in working conditions as shielding operators from direct rays of the sun, improving floor surfaces so that operators can stand more securely, removing rubbish from the work place and clearing away excess stock of material, and by improved lighting.[30]

By changing plant layout and reorganizing the production process in various respects, the following increases in productivity, among others, were achieved in the workshops of the Delhi Road Transport Authority. (See Table 37 overleaf.)

The method used was to train Indian personnel in methods study for approximately a fortnight, after which the trainees returned to their factories. The processes to be studied were selected by management. Then the trainees analysed the problems involved and proposed improvements, and in consultation with management and labour installed the new methods, all under the supervision of the foreign experts.[31]

In view of the results achieved, the conclusions reached by the first productivity mission seem warranted, namely, that

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[28] *Ibid.*, p. 45, Example 4.

[29] *Ibid.*, Example 5. [30] *Ibid.*, p. 46.

[31] *Report to the Government of India . . .* p. 12.

Table 37

PRODUCTIVITY GAINS ACHIEVED BY AN I.L.O. PRODUCTIVITY MISSION IN WORKSHOPS OF THE DELHI ROAD TRANSPORT AUTHORITY, 1956

Project	*Savings per 100 units*		*Increase in productivity per cent*
	Time in man-hours	*Distance in feet* [a]	
Reconditioning of self-starter and dynamo	300	1,42,300	50
Reconditioning of front and rear axle	500	1,07,000	25
Reconditioning of fuel injection pump	692	78,900	86
Reconditioning of injectors	58	69,700	176
Reconditioning of cylinder heads	2,450	1,52,700	200
Body repair	375	3,02,200	75
Reconditioning of engine	3,858	3,64,600	139

SOURCE: *Supplement to I.L.O. News Service*, Vol. IX, No. 3, March 14, 1957 (Geneva: International Labour Organization), p. ii.

[a] Refers to elimination of unnecessary carrying back and forth of materials within the plant through reorganization of plant layout and work layouts.

(1) work study techniques can be applied in India with marked success in raising output;

(2) work study techniques, properly applied, can improve industrial relations, although this result is dependent on a humane and sympathetic approach by work study men and supervisors; training in work study must therefore emphasize the need for such an approach;

(3) substantial increases in productivity can be achieved without capital investment;

(4) the improvement of working conditions is a highly important factor in raising productivity, and can often, by itself, lead to large increases;

(5) work study can benefit workers by improving working conditions, reducing physical effort and leading to increased output and higher wages.[32]

The mission also notes that it was, in their opinion, successfully demonstrated that given adequate supervision, members of existing staff in Indian plants can secure important improvements even after a comparatively short and incomplete training in productivity improvement techniques.[33]

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[32] *Ibid.*, p. 31.

If there is such great scope for improvement in the larger and relatively well-organized plants studied by the I.L.O. productivity teams, one can well imagine the possibilities in the small enterprises under study. Working conditions in these establishments are, with few exceptions very bad.[34] Plant layout and organization of production are haphazard in the extreme. Lacking training in industrial engineering and methods study, most new entrepreneurs copy the layout and methods used in plants which they have seen, even though these may be far from the most efficient. Thus poor methods are perpetuated, and production becomes organized according to rough rules of thumb rather than according to scientific principles. As the firm grows, the situation worsens. New machines are often installed in the space that happens to be open at the moment, even though the orderly flow of materials and semi-finished goods may thus be interrupted, causing unnecessary carrying back and forth. Machines are crowded too closely together. Absence of adequate storage facilities causes cluttering of floor space with materials and goods, impeding the movement of workers, and production tends to become more disorganized as time goes on.

There are a few exceptions to this general rule among the firms studied, but at least eighty per cent conform to the pattern just described. The managing partner of Firm 22 reads widely in the field of scientific management and industrial engineering and is constantly experimenting with better ways of doing things. He has carried out several time and motion studies in various sections of his plant. Firm 43 was set up by Japanese technicians, and is an efficient and well-organized unit, as are Firms 24 and 37, the two button factories. But even in these enterprises, markedly superior to the rest in the sample, a productivity expert could possibly suggest improvements.

For the most part, entrepreneurs are doing nothing to improve matters in their plants. There are several reasons, the first of which is the simple fact that they have had no training in methods study and do not know where to begin. A scientific tackling of the problem requires as a first step some sort of time and motion study. Proprietors are not equipped to carry out such studies, and trained personnel are not available. Even if production experts could be hired it is doubtful whether many entrepreneurs would avail themselves of their services. The writer found a distinct tendency for the industrialists visited to view with scepticism the value of methods study for small plants. There is a feeling, stemming from misunderstanding of what such studies involve, that they may be appropriate for the "big fellows" but are too advanced for small enterprises. This scepticism is reinforced by a defeatist attitude concerning the possibility of securing the cooperation of workers in introducing better methods. Finally, there is the fact that proprietors' attention is almost completely absorbed by day-to-day problems of a more immediate and pressing nature, such as shortage of raw materials, working capital problems and industrial relations. The less obvious problem of poor plant layout and production methods, to which they are already accustomed anyway, tends to drop out of sight.

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[33] *Ibid.* [34] See above, p. 114.

The proprietors are, however, aware of one aspect of the problem of technology, namely the need of improving the quality of their output. The writer found them, as a group, worrying a great deal about how to improve the quality of their castings, how to achieve greater precision in the machining of parts, how to produce electric motors which will not over-heat, and so on. Interest in these matters is largely attributable to growing competition and to the entrance of engineer-entrepreneurs into industry, which has raised standards considerably.

The handicap of most of the entrepreneurs is lack of technical knowledge. They are attempting to remedy this deficiency in various ways. Three have hired outside engineers to supervise operations. Several have sons or other relatives studying in engineering colleges preparatory to entering the firm. Many are studying technical books privately, and the writer received at least half a dozen requests for assistance in securing such books. Some improved techniques have been adopted by a few entrepreneurs, notably the use of aluminium in place of the traditional wooden patterns for casting.[35]

Greater access to technical knowledge will not solve all problems, however. There is also the problem of re-training workers when new methods are adopted. Shortly before the writer began his field work, a foundry expert sponsored by the United States Technical Cooperation Mission in India toured almost all the plants included in the present study, demonstrating better foundry techniques. This expert was received with great interest, and many entrepreneurs told the writer that they learned valuable things from his demonstrations. Very few, however, felt able to adopt the methods demonstrated. The reason was: "Our workers are not used to those methods, and we could never get sufficient co-operation to have them changed." Once again we encounter the barrier of human relations within the plant. As the first productivity mission of the International Labour Office has well said:

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[35] For an interesting discussion of the general problem of technical knowledge, see C. N. Vakil and P. R. Brahmananda, "Technical Knowledge and Managerial Capacity as Limiting Factors on Industrial Expansion in Underdeveloped Countries," *Economic Progress*, pp. 271–91.

> . . . improvements can only be expected, and attitudes conducive to higher productivity can only prevail, if human relations are based on mutual respect, and if there is confidence that changes and innovations will operate to the benefit of all parties. . . . The special difficulties created by social stratification, limited educational opportunities, the low bargaining power of the workers and the difficulties of communication arising from illiteracy and language differences demand a special effort to carry forward the improvement of human relations in industry. . . . The work of productivity experts can only be effective in plants where human relations are good, or where there is no barrier to their improvement following the changes which productivity experts can recommend.[36]

Improvement of production technology and betterment of labour relations are very closely connected. A good starting-point for technological advance would be improvement of working conditions in the plants studied.

Marketing

The development of efficient, low-cost marketing techniques also contributes to the widening of the market which is essential to economic development. The first requisite for effective marketing is adequate market information on the part of both buyers and sellers. As development gathers momentum, new products appear and potential buyers must be made aware of them, largely through the enterprise of producers. Conversely, as incomes rise and industry grows, buyers develop new needs. It is important that producers have adequate information regarding shifting demands so that they can adapt production accordingly.

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[36] *Report to the Government of India. . .*, p. 7.

The second requisite for effective marketing is the existence of efficient, low-cost channels of commerce through which goods can move expeditiously from factory to final user, with appropriate follow-up for servicing and supply of spare parts. Adequate credit facilities for the holding and movement of goods is a necessary part of such a mechanism.

Some progress is being made in improvement of marketing by the firms under study. The chief development has been the opening of sales branches distinct from factories by slightly more than a third of them.

Three methods of marketing are in use among the fifty-two enterprises studied: (*a*) direct dealing with the buyer at the factory level; (*b*) selling through sales branches, sometimes located in distant cities; and (*c*) marketing through agents on a commission basis.

It is not uncommon for an enterprise to employ several marketing methods in combination, particularly if it produces several products. It is, accordingly, difficult to classify firms according to one or other of the three methods. The following generalizations can be made, however.

Direct dealing with the buyer at the factory level is characteristic of firms which produce on order. Thirty-two, or nearly two-thirds of the firms studied do some work of this type. Such enterprises are manufacturers of machinery spare parts and fabricators of structural shapes. Producers of traditional types of agricultural processing machinery (such as rice-hullers and groundnut decorticators) are also included in this category since they generally sell directly to processing mills. This method of marketing is used by small firms when they are first established and while their market is largely local.

The older producers of processing machinery have clung to the method, even though some of them now sell throughout most of South India. Without exception, entrepreneurs in this industry told the writer that they do not canvass, but rely on the "quality" of their particular machines becoming known and thus selling themselves. For the most part these firms appear to have built up a following of traditional customers, sometimes in particular areas, who return through the years for spare parts and machines for replacement.

Some of the firms advertise occasionally in the vernacular press but active promotion of sales is, in general, alien to their thinking. They have little confidence in advertising because of the low literacy rate. They are also unwilling to send out salesmen to solicit more business because of the "possible unsettling effects" which such a departure from tradition might have. That is, they feel more secure under present arrangements and fear that they may lose traditional customers if more aggressive selling becomes the rule. Even the depressed conditions in the markets for processing machinery have not changed their thinking on the subject.

A more advanced form of marketing is reached when firms grow to the point where they open sales branches distinct from the factory. Nineteen of the fifty-two firms in the sample have established such branches,[37] and eleven of these have branches in cities other than the one in which the factory is located. This development has been characteristic of the consumer goods and the pump-producing industries. Goods are stocked in these agencies, from which they are supplied to buyers. Orders for special types of equipment are also received and transmitted to the factory. Firms with separate sales agencies do a modest amount of advertising, chiefly in newspapers and trade journals. Some of these firms also employ salesmen who travel about contacting firms and individuals who may be interested in the firm's products.

Three firms reported marketing their output through established agents on a commission basis, namely, the two button manufacturers and a manufacturer of brass utensils. A more modern variation of this is outright sale of output to established trading companies who re-sell to the final user. Several of the firms which manufacture pumps, motors and small machine tools dispose of a large part of their output in the latter way.

Although the marketing mechanism is simple, it appears to be adequate, given the size of the enterprises under study and the nature of their production. Marketing costs appear to be quite low, and the main cost appears to be transportation charges. This judgment is based on the fact that little advertising is done, that overhead for maintenance of sales branches is negligible, and that the typical branch consists of nothing more than a bare rented room. As competition among producers grows more intense it is probable that more attempts will be made to promote sales, but at the moment most of the enterprises are operating in sellers' markets and do not feel the need of more aggressive marketing. Some of the larger producers feel a need for greater market information, not only for their own use, but lest too many would-be producers overestimate what the market can absorb and over-crowd their industry. Ten firms in the Coimbatore area have established an Engineering-Manufacturers' Association, one of its purposes being "to collect and circulate statistics and other information relating to trade, commerce and engineering industries."[38] Little has been done to date, however. A few other firms belong to other trade associations.

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[37] Including merchant-entrepreneurs who use their trading firms to market the output of their engineering factories. See above, Chapter III, Group 2.

Human Relations Within the Plant

The importance of good labour-management relations has been stressed above in the discussion of production technology, and elsewhere in the present study.[39] Unfortunately, entrepreneurs appear to be doing very little to improve relations with their workers. In this area of human relations their technological backwardness is most evident and possibly most serious. As already noted,[40] a defeatist attitude has developed. Entrepreneurs tend to place all the blame for their troubles on "outsiders" who are organizing the unions. They have convinced themselves that it is useless to improve working conditions and raise wages, since "concessions only incite the workers to ask for more and so do more harm than good." Those for whom the problem is not yet serious are bending all their efforts to keeping a union from coming into the plant. Some have granted small wage increases for that purpose, and at least one has organized his own "shop committee" composed of workers and management which meets once a week to discuss problems of mutual interest. The writer was unable to find out whether the committee was merely a company union designed to keep the workers from joining an outside union or a genuine effort at establishing contact with the workers and promoting mutual understanding.

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[38] *Memorandum and Articles of Association of the Southern India Engineeering Manufacturers' Association* (published by the Association, Coimbatore), p. 2.

[39] See above p. 168 and Chapter IV, Employer-Employee Relations.

[40] See above, Chapter IV, p. 133.

Development of such contact and understanding is the main form which "technological advance" in the area of human relations within the plant must take. Entrepreneurs must also become convinced, as the International Labour Office experiments have shown, that improvement of working conditions can lead to large increases in productivity (which will permit wage increases) and can do much to improve labour relations.[41]

Table 38

LIST OF FIRMS BY DATE OF ESTABLISHMENT AND EMPLOYMENT AND INVESTMENT AT TIME OF ESTABLISHMENT AND IN 1956

Ident. no. of firm	*Year estab.*	*Employment* [a]		*Investment* [b] *(Rs.)*	
		First year	*1956*	*Initial*	*End of 1956*
1	1884	[c]	72	. .	1,65,000
2	1916	. .	52	. .	1,46,000
3	1921	. .	55	. .	1,70,000
4	1922	20	144	45,000	3,00,000
5	1923	. .	67	30,000	2,28,000
6	1924	. .	218	. .	10,92,000
7	1926	. .	89	. .	1,87,000
8	1934	12	122	11,000	6,54,000
9	1935	. .	87	12,000	1,25,000
10	1935	. .	100	. .	1,75,000
11	1939	18	53	11,000	1,10,000
12	1939	29	90	. .	4,05,000
13 [d]	1940	79	69	. .	2,25,000
14	1941	. .	53	65,000	1,47,000
15	1941	6	82	4,500	3,19,000
16	1934	3	72	6,500	1,72,000
17	1942	6	72	7,500	3,08,000
18	1944	12	118	30,000	4,37,000
19	1945	10	80	60,000	4,05,000
20	1945	14	51	40,000	96,000
21	1946	17	54	65,000	1,15,000
22	1945	20	4,434	. .	60,72,000
23 [e]	1946	20	248	. .	. .
24	1946	70	250	35,000	5,87,000
25	1947	18	114	45,000	2,28,000
26	1947	44	412	. .	. .
27	1947	9	53	15,000	1,09,000
28	1947	25	100	1,15,000	3,24,000
29	1947	27	65	1,50,000	6,25,000
30	1947	11	57	20,000	1,45,000

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[41] See above, p. 168.

Table 38—(*Concld.*)

LIST OF FIRMS BY DATE OF ESTABLISHMENT AND EMPLOYMENT AND INVESTMENT AT TIME OF ESTABLISHMENT AND IN 1956

Ident. no. of firm	*Year estab.*	*Employment* [a]		*Investment* [b] (*Rs.*)	
		First year	*1956*	*Initial*	*End of 1956*
31	1949	2	75	4,000	92,000
32	1949	9	52	27,000	75,000
33 [f]	1944	5	124	. .	1,10,000
34	1949	25	103	30,000	77,000
35	1949	12	56	40,000	1,52,000
36	1949	10	79	60,000	1,98,000
37	1949	60	150	1,00,000	5,33,000
38	1950	. .	65	. .	2,22,000
39	1947	3	53	5,000	1,09,000
40	1951	16	80	20,000	1,05,000
41	1951	27	58	25,000	89,000
42	1952	27	51	40,000	1,38,000
43	1952	57	200	5,00,000	8,19,000
44	1953	19	77	1,00,000	. .
45	1953	25	65	1,75,000	2,81,000
46 [e]	1955	. .	60	. .	. .
47	1956 [g]	22	52	60,000	97,000
48	1956	35	51	60,000	1,10,000
49	1956	30	75	65,000	1,35,000
50 [e]	1956	. .	60	. .	. .
51	1956	20	60	75,000	1,10,000
52	1956	53	53	1,00,000	1,29,000

SOURCE: Field investigations and annual lists of factories in Madras State.

[a] Employment figures are for average number of persons employed, in addition to proprietors, during first year of operations and during 1956.

[b] Investment figures include both fixed and working capital, at the disposal of the entrepreneur for the initial establishment of the enterprise, and as of December 31, 1956. Figures are rounded to nearest thousand.

[c] Actual figures pertaining to initial size were not available for most pre-World War II firms. An accurate, if somewhat general idea of the small scale on which they were established can be obtained from the case-studies of Chapter III.

[d] Not founded by the present proprietor but purchased by him in liquidation proceedings and put back into operation by him in 1940.

[e] Exists as integral part of a larger unit, hence separate investment figures not available.

[f] Not founded in 1944, but inherited by present proprietor in that year and reorganized by him in 1949.

[g] For firms organized during 1956, first column under Employment refers to average employment during 1956, and second column to employment at time of the writer's visit. Second column under investment refers to investment at time of visit.

CHAPTER VI

ENTREPRENEURIAL MOBILITY

ECONOMIC DEVELOPMENT is a highly dynamic process characterized by continual and sometimes rapid change. As industry grows and incomes rise, markets shift, new demands appear and opportunities develop for the production of goods hitherto not in use or imported from abroad. The pattern of production must be constantly adapted to changing circumstances if it is to be kept in harmony with demand patterns. Such adaptation is an important aspect of the entrepreneurial function.

As seen in Chapter I,[1] however, it is often difficult to decide whether new products should be manufactured by entrepreneurs already established in one line of production or whether new firms should be established for the purpose. As a matter of fact, as will be seen shortly, existing firms show a fairly high tendency to shift into new lines of production as the economy develops. There are two main reasons for this phenomenon. The first is the desire of entrepreneurs to exploit new and profitable markets before others do so. The second is the desire for greater security. In the fluid situation of rapid economic development, a firm which is dependent on one product or one type of customer is very vulnerable to market shifts and growing competition. As a consequence, entrepreneurial mobility becomes, for good or for ill, an important adjunct to economic development. In the present chapter the mobility record of the entrepreneurs under study will be investigated. The subject is most conveniently handled by grouping firms on an industry basis, since each industry presents its own peculiar opportunities for diversification and other shifts in production patterns.

CASE STUDIES

Agricultural Machinery

SIXTEEN of the fifty-two firms under study, the largest number in any one industry, are engaged in the production of agricultural machinery. The firms fall into two sub-groups: (*i*) producers of agricultural and processing machinery such as rice-hullers, sugar-cane-crushers,

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[1] See above, p. 13.

oil-expellers, and flour mills; and (ii) producers of power-driven pumps. Because of the very different circumstances in which the two groups of firms find themselves, they will be treated separately.

Producers of Agricultural and Processing Machinery. Eight firms reported production of this type of machinery as their main line of activity (Firms 1, 2, 5, 11, 13, 16, 20 and 27). These firms are among the oldest in the sample, five having been established before the Second World War, one in 1942, and the remaining two in the mid-forties. As a group, they have changed their traditional pattern of production little since establishment. All have broadened their activities somewhat to include repair and manufacture of parts for other kinds of machinery (oil-engines for example), but in the main, diversification of production has been unimportant. Such diversification as has taken place began during the War, when they found it profitable to establish side-lines.

Three of the eight firms constitute something of an exception to the general pattern. Firm 16 was originally established as an adjunct to the proprietor's flour mill, and was expanded in 1942 to take advantage of the War demand for engineering goods and machinery parts of various kinds. After the War, the proprietor, a graduate engineer, turned to the production of rice-hullers. He soon added a second line, namely disintegrators for pulverizing soap nuts, roots, chemicals and oil-cakes. The first models were adapted from foreign types, but modifications have been constantly introduced until the firm considers the present machine a disintegrator of its "own design." During the War, the proprietor had experimented with the manufacture of small machine tools. The line was dropped after the War, since the market was not considered certain enough to risk expansion. With the rise in demand in connection with India's First Five Year Plan production was again begun, and the firm is now marketing a small planing-machine and a spring hammer. All parts of the latter are manufactured by Firm 16 except the steel leaves, which are imported from Sweden. The present proprietor (the son of the engineer-founder of the firm, now dead) plans to add other lines of machine tool manufacture. The firm's disintegrators and machine tools are marketed through a large dealer with branches in many parts of India, who considers them a high-quality product.

Firm 20, established as a producer of rice-hullers, still its main line, has been experiencing difficulties due to the low demand for *these machines at present.*[2] *In an effort to improve its position, this* enterprise has begun casting diesel engine parts for a large firm in the area which has been expanding its activities. Thus Firm 20 has begun diversifying in the direction of ancillary production.

Firm 27, the only postwar firm in the present sub-group, is in a unique line of activity, namely, the manufacture of well-boring equipment. The firm was established to manufacture textile-doubling frames, manufacture of well-borers being established a few years later as a secondary line. The latter is now the firms' major and almost only activity. The firm has been growing slowly but steadily, and alongside its manufacturing activity has developed a contracting business for leasing its well-borers.

These three firms are the only ones in the group of eight which are doing well at present. Four of the other five (Firms 1, 2, 11 and 13) are in trouble, and the fifth (Firm 5) is at best stagnating. The immediate cause of their difficulties is the depressed state of the market for their traditional products.[3] At least three of the five firms are fully aware that their salvation lies in developing new lines of production and are giving the problem much thought. An analysis of the reasons why they have not yet diversified throws a great deal of light on the problems of the older medium-sized firm faced with the rapidly changing conditions characteristic of economic development.

Firm 13 was once a very progressive enterprise. It is a very old British firm which went into liquidation in the later 1930's and was purchased by the father of the present proprietors (a dealer in scrap metal) in 1939. This scrap-metal merchant, although his original intention in purchasing the firm was to re-sell the machinery, decided to operate the factory. He proved to be an enterprising industrialist until his death in 1952. Under its original British management, Firm 13 had specialized in the production of oil engines and sugarcane-crushers. Shortly after deciding to operate the firm, the new proprietor introduced two new lines, namely, oil presses and machine tools, beginning with production of machinery for his own oil press and rolling mill (Firm 14), both set up by him in 1940.

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[2] As mentioned earlier, the decline in demand is due chiefly to the Government's restriction of new rice mills in an effort to assist co-operative societies for the hand-pounding of rice. The policy is aimed at alleviating unemployment in rural areas.

[3] In addition to the difficulty mentioned in the preceding footnote, Firm 2 has a special problem. For many years this firm has specialized in the production of a special type rice sheller known as the "American-pattern sheller" which is the traditional type used in certain Telugu areas of Andhra State. When those areas were separated from Madras State in 1953, as a step toward the linguistic re-organization of states completed in November of 1956, Firm 2 suffered a loss of markets, which the proprietor attributes to the "nationalistic feeling against Tamil-speaking people."

During the War, both lines were expanded and the old lines continued. After 1947 demand fell off for both sugarcane-crushers and oil-expellers—for the former because of the postwar trend toward larger and more modern sugar mills requiring heavier crushers than this firm could manufacture; for the latter, because of the over-expansion of the industry leading to excess capacity. The firm ran into serious difficulties, partly overcome by expanding production of small machine tools, especially its radial drilling, boring, tapping and studding machines. The depression in the engineering industries after 1951 hit Firm 13 very hard, by reducing the demand for its machine tools. The enterprise has barely been maintaining its existence since then. Most of its equipment is now very old, and new competitors have appeared in the field of machine tool production. Both factors impede the firm's re-entrance into that line on the scale required to put it back on its feet.

The proprietor told the writer that it takes him two weeks to make a lathe bed, with his antiquated equipment, whereas one of the new firms can make one in two hours with new automatic machines. In addition, he is severely handicapped as to the type of machine tool he can now produce, since his old machinery is not capable of high precision work. Recently he tried to manufacture petrol tanks for one of the automobile companies in the area but found that his cost was three times the price of the imported article, due again to his inefficient plant.

This entrepreneur is anxiously casting about for some line of production which will enable him to compete once again. He entered into negotiations with an American company for the manufacture of electric motors, but without success. Saddled with an antiquated plant and his reserves having been eaten up by five years of depression, he can do little until he succeeds in raising the capital needed to instal some new machinery. He says that he has approached several banks, without success, and has been unable to secure from the Government the million rupees needed for the modernization programme he has projected. This firm looks as if it could be saved if it could secure capital to finance a shift into new lines of production.

Firm 2 also realizes that it must seek new lines of production. The proprietor wants contracts with the Government railway coach factory, but two obstacles stand in the way. First, he needs some new machines, as his present equipment is not suitable for turning out the finely finished small parts and precision work required by the coach factory. Second, even if he could get the capital to buy the new machinery he would have to re-train part of his labour force. The second looms in his mind as the chief obstacle. Labour relations in the plant have not been good, and the proprietor lacks the technical knowledge for re-training his work-force, even if he could get their whole-hearted co-operation. Meanwhile the firm goes steadily down-hill.

Firm 11 is not yet in as serious a difficulty as Firm 2, since it has been more successful in maintaining its sales of rice-hullers, but it has been declining slowly, and the proprietor is worried that he is "going down and down." He attributes his difficulties chiefly to bad labour relations, low productivity and poor morale in the plant. He sees the need for new lines of production but foresees great difficulties in getting the full co-operation of his workers and interesting them in learning new techniques. This man is a graduate engineer capable of re-training his workers. Recently he offered to run a re-training course one hour each day after working hours for any workers who were interested. Only a few accepted the offer, and when they found that they were not to be paid for the extra hour they quickly lost interest, and the scheme fell through.

That firms like those just discussed can be put back on their feet by a successful change in their pattern of production is proved by the experience of Firm 3. This enterprise, established originally as a producer of traditional agricultural machinery, chiefly rice-hullers, has transformed itself into a structural workshop. It was established by the enterprising Naicker family which also founded Firm 2. For many years the two firms, under the management of the joint family, followed almost identical paths of development and by 1939 were approximately of the same size. During the last years of the War, for reasons the writer was not able to ascertain, Firm 3 suffered serious reverses, and by 1945 its employment was only half what it had been in 1939. When the family property was divided in 1947, Firm 3 came to the present proprietor, one of the sons.

During the War, this gentleman had worked, not in the family enterprise, but in Firm 13, where he learned much about the production of machinery other than rice-hullers. When he took over management of Firm 3 in 1947 he immediately began to diversify its production activities, first with the production of gas-burners, sold, among other users, to local colleges for use in their laboratories. A little later he entered the field of iron pipe production and fabrication of structural shapes. With the expansion of irrigation projects by the Government during the period of the First Five Year Plan the two last-named activities have become Firm 3's main activities. This proprietor reported that ninety per cent of his business is now with the Government, in the form of manufacture of pipe, tunnel rims, collapsible water gates and other equipment for irrigation projects. Meanwhile, the proprietor is keeping his eyes open for other profitable lines of activity. Two years ago he began experimenting with manufacture of aluminium utensils, but this unit has been shut down "because of labour troubles."[4]

The effect of this production shift has been to reverse the downward drift experienced by Firm 3 during the late war and immediate postwar years. The enterprise is now approximately the size it was in 1939 and in a very good position to grow larger. It was able to carry out its diversification programme without outside technical help and with very little change in equipment. Its sister concern (Firm 2), on the other hand, although it underwent a substantial wartime boom, has been declining since the War's end and is in deep trouble at the present time. The contrast between the present positions of the two firms is very striking.

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[4] This reason was the only one given, and there were, in fact, several strikes in the unit during its first year of operation. Another factor in the failure of the venture, however, and perhaps the major one, is that aluminium utensil manufacture in the area is dominated by a very large concern with branches in five or six major cities of India. The writer visited the plant of this company, which has nearly four hundred employees and produces utensils on a mass production basis from virgin aluminium. Small units in the field, like Firm 3, in contrast, produce utensils from aluminium scrap and by less efficient methods. While these utensils can be sold more cheaply (because of low overhead) they do not have a wide market. The poorer consumer is more used to the traditional brass and clay vessels. The more well-to-do consumer, on the other hand, who is likely to prefer aluminium ware, is more attracted to the higher quality and more finely finished product of the larger company. Another case of failure on the part of a small aluminium utensils manufacturer was also encountered in the region.

Producers of Power-driven Pumps. The development of the pump industry in South India, as in India generally, is a postwar phenomenon, the main growth of the industry having taken place only since 1950. The reasons for the rapid development of the industry have been the development of hydro-electric and irrigation projects, Government loans to farmers for the purchase of pumps, and restrictive import policy. One of the firms of the present group, however, was producing pumps well before World War II, and is one of the pioneers in the pump industry in India.[5] As far back as the late twenties and early thirties, the founder of this enterprise and his son were touring the countryside in the western part of the state, trying to interest cultivators in the installation of pumps for irrigation in place of the traditional water wheels and bullock-powered lift systems. Their method was to instal a pump on a sceptical peasant's farm to demonstrate its advantages, waiting for payment until he was satisfied as to the pump's superiority over the old method.

Eight firms of the fifty-two studied reported the production of power-driven pumps as their main activity[6] (Firms 6, 7, 17, 18, 36, 41, 47 and 51). They vary in size from very small producers turning out six or seven pumps a day, to the largest, Firm 6, with a production of between forty and fifty a day. Two date from before the War, two were established during the War years, and the rest since 1949. Four of the eight firms were originally established as small odd-job and repair shops (Firms 6, 7, 17, and 18) and moved into the field of pump manufacture when they were reorganized as manufacturing establishments properly so called. The remaining four were founded as power-pump manufacturers.

More diversification of production has taken place in this industry than one might expect in view of the recent establishment of most of the firms. This diversification has taken two main forms: (*a*) gradual expansion of the number of types and sizes of pumps turned out and (*b*) production of electric motors, the last being the most recent development. Diversification of the first type has characterized all eight firms, though in varying degrees. The smaller firms offer seven or eight types and sizes, and the largest approximately thirty.

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[5] Firm 6, cf. above, Chapter II, Rural Artisans p. 47.

[6] The pumps produced by these firms are centrifugal suction water pumps used chiefly for irrigation purposes. They are of two main types: (*i*) pumps designed to be belt-driven by an oil engine, and (*ii*) those coupled with an electric motor. Both pumps and motors are produced in a variety of sizes ranging from two to ten inch delivery and suction branches.

Three Firms have begun manufacture of electric motors (Firms 7, 17 and 36), all during 1956. A fourth firm (Firm 18), is in the experimental stage and hopes to begin regular production soon. Only Firm 36 has set up a new plant for motor production, the rest carrying on the operation alongside their pump production.

The addition of electric motor manufacture is a logical development in the industry. As electrification has spread in rural areas the demand for electrically-powered pumps, instead of the older oil-powered belt-driven models, has risen. Hitherto these firms have had to purchase domestic or imported motors (chiefly the latter) for coupling with their pumps. These motors have been in very short supply in India in recent years, which has hastened the shift of firms into production for themselves. These entrepreneurs, as well as others encountered, are well aware of the rapidly expanding market for motors of all types, and the firms which have already entered the field plan eventually to produce for the general market as well as for their own needs.

For at least one of these pump producers, electric motor production is not the first excursion into lines of activity other than pump manufacture. This concern is Firm 36, the proprietor-founder of which is an engineer trained in England.[7] Established in 1949, the enterprise had barely found itself when the depression in the engineering-manufacturing industries set in. Faced with declining markets for his pumps, the proprietor experimented with two other lines of production. He began manufacturing textile machinery parts, for Firm 22, and automobile and truck pistons. The latter venture was not a success. It was an enterprising operation, but turned out to be beyond the firm's capacities. The production of two types of pistons was undertaken: aluminium pistons for Hindusthan cars, and cast-iron pistons for Chevrolet trucks. They were produced, not on order for the automobile companies but for sale to automobile repair shops throughout the state. The proprietor attributes his failure to two factors. The first was his inexperience in manufacturing pistons, leading to high-cost production and high selling-price. The second was that the capital at

[7] Cf. above, Chapter III, Group 4, p. 69.

his disposal was used up in production, leaving nothing for sales promotion. Consequently he was able to sell only a small portion of his output, and still has nearly a thousand pistons on hand. Nevertheless, he does not regret the experience and considers that the lessons learned in the process will stand him in good stead should he ever re-open that branch of production. He has no plans for doing so at present. He believes, too, that he got some "valuable advertising" out of the operation, and still gets an occasional order for a piston. Ancillary production of textile machinery parts saved the firm and is still carried on.

The conclusion seems warranted, therefore, that the sixteen firms in the agricultural-machinery industry have been much interested in new lines of production as a means of solving their problems, although not always able to implement their plans. For some, shift into new lines has played an important role in their survival or rescue from decline.

Steel Fabricating and Structural Workshops

After the agricultural machinery industry, the most important industry represented, in terms of number of firms, is the structural industry. Eight of the fifty-two firms in the sample reported fabrication of structural shapes as their main activity (Firms 3, 4, 10, 19, 33, 39, 40 and 49). Four firms are located in Madras, and four in Coimbatore. Five began in the structural field, the three others getting into it through diversification. Of the last three, two were established as manufacturers of rice-hulling machines, and the third as a small odd-job and repair shop.

The eight firms under consideration have diversified more than one might expect, given the specialized nature of the construction industry. The usual pattern has been for a firm to begin with the fabrication of simple building parts such as iron-grille gates, metal door frames and window sashes, and to expand gradually the number of structural shapes fabricated, and the extent of activities undertaken. At the present time some of the firms undertake the steel work for entire mills and factories. Side by side with this type of diversification, several have branched out into activities other than building construction, notably into manufacture of carts and trailers, the latter chiefly for use with imported tractors.

Firm 19 is a leading example of the latter trend. For the first five years after its establishment in 1947, this firm, located in Madras, specialized in building construction work. In 1953, it began accepting orders for the manufacture of steel carts and trailers for several large companies importing foreign tractors. This line of production, and particularly trailer manufacture, has expanded steadily, and at present constitutes fifty per cent of the firm's annual turnover, construction work accounting for most of the rest. Some small machine tools are also produced, but most of these are used in the firm's own plant. This enterprise is currently turning out between one hundred and one hundred and fifty trailers a year, of two to fifteen ton capacity. The firm makes all parts of the trailer except the wheels (which are imported from Germany) tapered roller bearings for hubs (imported from various countries) and the leaf springs (which are made to Firm 19's specifications by an Indian firm using steel leaves from the United States).

Forty per cent of the trailers are sold to one large company importing tractors from the United States. Firm 19's relationship with this importer, a foreign concern, constitutes an interesting example of technical assistance supplied to a large foreign company by a small Indian enterprise—a kind of foreign technical assistance in reverse. The branch manager of the importing company told the writer that the proprietor of Firm 19, a highly qualified engineer, has been of great value to his company in adapting the foreign tractors, and their trailers, to Indian conditions.

As an example he cited a special coupling between tractor and trailer designed by the proprietor, which withstands the most rugged road and field conditions. To sell its tractors to local ryots, the importing company must often drive the tractor, with a trailer fully loaded with accessories, a hundred or more miles to the prospective buyer's village. The rutted, sharply-turning Indian roads caused frequent breakdowns until Firm 19 solved the problem with its special coupling. Another example mentioned was the designing of special tractor fixtures for attachment of farm implements used by the Indian peasants, small fertilizer carts, etc. The proprietor of Firm 19 is currently working on a problem which has been one of the main obstacles to the importing company's tractor sales, namely how to keep the tractor from getting stuck in the mud. The ryots in South India use tractors for the puddling of rice fields. The field is flooded for several weeks at the beginning of the planting season, after which the field is churned into mud by the tractor in preparation for transplanting the rice shoots. The Western manufacturers did not have this use in mind when designing their tractors, which often end up stuck in the middle of the field.[8] The problem has proved to be very stubborn, and has seriously impaired tractor sales.

Firm 19 is gradually shifting out of building construction work into manufacturing of the type mentioned. The foundry section was being expanded when the writer was visiting the firm. A cupola capable of melting five tons per hour was being installed, in place of the present one and one-half ton furnace. A new unit was also being set up (as a distinct firm, but adjacent to the present plant) for the manufacture of cement-mixers and cranes up to two tons.

Firm 39, located in Coimbatore, has gone through a pattern of development very similar to that of the firm just treated. Founded in 1947 as a small workshop making iron-grilles and small building structurals, it began diversifying in 1954 in the direction of cart and small trailer manufacture. The carts and trailers manufactured by this firm are much smaller than those turned out by Firm 19, however. Firm 39 specializes in such small items as hand trucks for transporting cotton bales in textile mills, small water tank carts sold to the municipality, and fertilizer carts, for use in agricultural areas. Production of such items accounts for nearly half the firm's annual turnover. Approximately ninety per cent of output is sold to the Government.

The proprietors of this enterprise, three brothers, feel somewhat insecure in their heavy dependence on the Government for a market and are anxious to diversify production still further. They have plans for getting into nut and bolt production, and have estimated that the local foundries and other engineering establishments in the area could absorb five tons of nuts and bolts a day in their fitting departments. There is no local firm manufacturing nuts and bolts at present. The impediment to this project is the familiar one of lack of capital. The proprietors estimate that they would need between three and four hundred thousand rupees to establish a mass production unit, and they have been unable to obtain it. They believe they could get Government assistance, but not until they have made a start. They plan to begin on a small experimental scale with such capital as they have and then attempt to expand the enterprise. This firm also acts as the local agent for a firm importing foreign electric motors and pumps of special types.

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[8] The branch manager of the importing company has a photograph (which he is not advertising) of one of his tractors being pulled out of a field by an elephant borrowed from a nearby temple.

The development of Firm 49 has been analogous to that of the preceding two enterprises, except that its diversification has been into the field of petrol tank manufacture for a large oil company in the area, both ground storage and truck tanks being produced. This firm feels overly dependent on the large company for its market and is currently diversifying further. At the time the writer was visiting the enterprise, a machine shop costing approximately fifty thousand rupees was being installed (financed out of profits and additional borrowings from "friends and relatives"). This shop is designed for the production of automobile spare parts, beginning with gears and bushes, an activity which the proprietors plan to expand gradually.

Of the remaining five firms in the structural industry, Firm 3 has already been treated.[9]

Firm 4 is a prewar firm, founded in 1922, as a producer of rice-hullers. It was established as an adjunct to the proprietor's trading business in those machines. During the thirties the firm gradually expanded its activities to include the production of various machinery parts, as well as structural shapes for buildings, including iron gates, grilles, roof trusses, tanks and fancy cast iron furniture. These structural products are now the company's main line, although production of machinery parts for large companies in the area is also important. This firm has been largely stabilized since the War, both in size and type of activity, although it is currently growing again with the increased tempo of economic activity in the Madras area. A major innovation of this enterprise was the establishment in 1948 of a steel casting unit in Andhra State, equipped with the first electric steel melting furnace in South India. The proprietor of Firm 4 considers this venture an experiment and "laboratory" in which to gain experience in production of steel castings for machinery spare parts. The melting capacity of the furnace is ten hundredweights per hour, but expansion is contemplated as soon as sufficient experience has been gained. The chief obstacle in the operation of the new unit has been the inability of the firm to secure the services of a qualified Indian or foreign technician despite the persistent efforts of the proprietor.

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[9] Cf. above, the section on traditional agricultural machinery industry. It was there explained how the firm succeeded in transforming itself into a structural workshop, and the important role which this diversification played in the reversal of its postwar decline.

The last three firms in the present category have confined their diversification activities, such as these have been, to new lines of work undertaken in the field of building construction, rather than new side-lines, although Firm 40 reported that it will shortly instal a foundry and begin production of power-driven pumps. As former workmen in a large pump-manufacturing plant, the proprietors have had experience in pump production. Firm 33, originally a small repair and odd-job shop, shifted into the structural field in 1949 with the upsurge in mill construction in the Coimbatore area. The firm began on a small scale with fabrication of door and window frames. The firm now undertakes the steel work for entire buildings throughout the state. Manufacture of steel windows has become something of a specialty, and the firm recently began manufacture of brass spring window-catches, purchased until a year ago from other companies. The latest activity, added a few months before the writer's visit, is the manufacture of humidification ducts, and their installation in textile mills. The new line was made possible by the recent return of the proprietor's son-in-law, with an engineering degree. This gentleman is now the works manager, and is also in charge of the newly established drawing department. This firm is anxious to act on various plans for expansion and improvement, including the introduction of its own brass casting unit, the introduction of pneumatic and spot welding processes, and the installation of more and newer type lathes. These plans, the proprietor reports, have thus far been frustrated by his inability to raise capital. He wished to take advantage of the Government's hire-purchase scheme in order to acquire new equipment, but his application was rejected on the grounds that his is not "small-scale." This interpretation of the Government's definition was correct inasmuch as the firm employs slightly more than one hundred workers, although his total investment is less than Rs. 5,00,000.

Textile Machinery

The manufacture of textile machinery in South India, as in India generally, is a recent development, and it is not surprising, therefore, to find only three of the fifty-two firms studied engaged in that line of activity (Firms 22, 23 and 48). These three firms, moreover, differ very much in size as well as in the types and varieties of textile machinery manufactured. The industry in South India is dominated by Firm 22, now a very large concern with nearly four thousand employees, although the firm started on a small scale, as described above.[10] It now manufactures complete ring spinning frames, fly frames, drawing frames, carding engines, bundling presses, and reeling machines, both hand operated and power driven—in other words, practically everything needed for the equipment of a cotton spinning mill. At the other extreme is Firm 48, which manufactures only hand-operated and power-driven reeling machines, plus spare parts for other kinds of textile machinery. Firm 23 finds a place midway between the two enterprises just mentioned. It is part of a family-owned complex comprising a textile mill and printing press, and produces most of the types of machinery manufactured by Firm 22, but in much smaller volume. Production is chiefly for use in the family-owned mill and others in which the family has an interest, although some are also sold in the general market.

Firm 48 is currently withdrawing from the textile machinery field. It was begun on a small scale in 1947, with the manufacture of bearings for textile machinery only. Shortly after operations were begun, production of hand-operated reeling machines was added, and a little later manufacture of some power-driven models. Manufacture of reeling machines of both types soon became the firm's main line of activity. To insure against a possible slump in the market for textile machinery, the proprietor began experimenting with manufacture of automobile spare parts in 1954. He succeeded (with the help of a hired engineer, since the proprietor himself has no engineering experience) in devising a technique for cutting clutch gears for Austin cars on a shaping machine. As a result he is able to sell such gears at slightly less than one-half the imported price. His entire output of gears is sold to one dealer.

Firm 48 is currently engaged in shifting out of the manufacture of textile machinery into production of electric motors. Several models have been developed over the past year, with the help of an Indian technician hired for the purpose. A contract has been negotiated for marketing the motors through a large dealer in engineering goods, and the licence from the Government enabling full scale production to begin is now awaited. As soon as the licence is obtained, production will begin in the present plant, but the proprietor has plans for erection of a new unit on land already owned by him. This unit will have a production capacity of 150 motors per month.[11]

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[10] Chapter III, Group 4, pp. 65ff.

There is little to say about the diversification of Firm 23, beyond what has been said above.[12] The unit came into existence to manufacture printing machines, and later added production of textile machinery, the entrepreneur's main interest from the beginning. There has been little change in the activities of the firm since the introduction of textile machinery manufacture. The most important of these has been the production of the cradles used in the ring spinning frames. Formerly these were imported, since their production requires great precision. The engineer-entrepreneur, without doubt highly qualified, is proud of his achievement in this respect. He has many plans for expansion of production, but cannot persuade the family to invest the necessary capital.

Firm 22 (a large, not a medium-scale enterprise) is the only major producer of textile machinery among the three encountered. Since its establishment in its present form in 1947, this enterprise has diversified production in important respects, in addition to progressive widening of the kinds of textile machinery produced. The managing partner is convinced that addition of several new lines of manufacture is essential to the firm's security, since when

[11] This entrepreneur alleged a secondary reason for his anxiety to switch into the field of motor production. Apart from the profit opportunities he sees in the rapidly expanding market for electric motors, he says he is tired of dealing with mill owners, "who know nothing at all about the engineering industry, and constantly haggle over price with no concept of the costs involved." The writer was able to see what he meant, when he sat in the proprietor's office for a half hour one day while the proprietor bargained with a mill representative. The latter wanted one pulley made, wanted it immediately, and refused to pay more than three rupees. The proprietor pointed out what was involved in the request: the manufacture of a pattern which would permit casting to the exact specifications desired (a process which would take a worker almost a full day to complete), interruption of the order he was currently engaged in filling, and finally the casting and machining of the piece. He pointed out that if the mill were willing to take several pulleys, which would be needed presently for replacement anyway, he could give them at the three rupee price. After a half hour of haggling, the proprietor finally gave in, although he would not promise immediate delivery. This type of thing, he said, goes on all the time and was one of the reasons why he wanted to get into a new field of production.

[12] Chapter III, Group 4, p. 66 ff.

the present wave of mill expansion comes to an end a few years from now his market for new textile machines will greatly contract. Consequently, in 1954 he established a new branch for the manufacture of diesel engines, and acquired, around the same time, a controlling interest in an electric motor manufacturing firm (Firm 26), which has been merged with Firm 22 as one of its branches. Production of both diesel engines and electric motors has been expanding slowly. The diesel engines are designed for use in trucks and buses, and the motors are used in the company's own textile machines as well as sold in the open market. The proprietor wishes to diversify still further, by entering into production of general purpose machine tools on a major scale. He has had nearly ten years experience in manufacturing machine tools, both special and general purpose, for use in his own plant, which is largely equipped with tools of his own manufacture.[13] He says that he can get the capital required to set up a machine tool factory. The obstacle to entering the field is the refusal of the Government to grant him the necessary licence, on the ground that he should concentrate on manufacture of textile machinery so that he can constantly improve the quality of those machines. His answer is that his textile machines already meet the required standards, and that the country badly needs the simple machine tools he wishes to manufacture.[14]

The managing partner of this firm, a graduate engineer trained in England, has also personally developed a product which comes close to being an "innovation" in the full Schumpeterian sense, inasmuch as it could have a far-reaching effect on the Indian economy. This innovation is a 16-spindle electrically-powered spinning unit (with ancillary units for matting, carding and drawing) for use in cottage production of 20-count cotton yarn. The productivity of this unit, estimated at five pounds of yarn per day, is much greater than that of the *Ambar Charkha,* which in the proprietor's mind it is designed to replace.[15] The unit requires two persons for its operation and is small enough to fit into a one room cottage. At the time of the study it was being tested in a Government Training Centre in Pollachi, a town some twenty miles from Coimbatore. The writer visited this Centre in company with the managing partner of Firm 22. Two persons from the same household, usually husband and wife, are trained for several months, after which the unit is installed in their cottage. About six cottages have been equipped thus far, and a daily check is being kept on production of yarn and difficulties encountered. The official in charge of the pilot project told the writer that thus far production has been averaging approximately three pounds of yarn a day, but that they are confident of raising it to capacity. It has been difficult, however, to persuade the cottagers that all four operations —matting, carding and drawing, as well as spinning—must be kept going simultaneously to avoid interruptions in spinning and achieve maximum production. Some of the operations have also been found to be somewhat complicated for former hand-spinners unused to machinery, and the designer is simplifying the machine. These improvements will also lower its price from the present Rs. 1,500.

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[13] This proprietor attributes part of his success in building up his company in so short a time to the fact that he was able to make a large proportion of his own equipment. Much money has thus been saved, he says, and the long delays involved in importation of equipment avoided. The U.S. Machine Tool Advisory Group which toured India in mid-1957 was much impressed with the proprietor's achievements in machine tool manufacture. The machines he has produced meet the internationally recognized Schlesinger standards of precision. The writer accompanied the Group on its visits to firms in the area.

[14] The proprietor of the largest privately owned machine tool manufacturing company in India, a member of the Advisory Group just mentioned, told the writer that he is two years behind in filling orders for the lathes he manufactures.

This pilot project has interesting and important implications for the Indian textile industry in general and the *Ambar Charkha* programme (to which the Government is currently committed) in particular. The proprietor of Firm 22 is greatly interested in the development of cottage industry in India, but believes (and the present writer agrees with him) that every effort must be made to put the cottage sector on a competitive basis through the introduction of new and efficient production techniques, involving the use of power where feasible. This subject is a broad one, however, and outside the scope of the present study.

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[15] The *Ambar Charkha* is a hand-operated spinning unit consisting of a carding machine, a drawing machine and a four-spindle spinning wheel costing in all about Rs. 100. The Khadi and Village Industries Board has recommended the manufacture and distribution of 2·5 million *Ambar Charkhas* by 1961, in connection with India's Second Five Year Plan. The programme is intended to provide part-time and full-time employment for an estimated 5 million persons, and to establish a decentralized hand-spinning industry for the provision of yarn to cottage hand-looms. Cf. *Second Five Year Plan* (New Delhi: Government of India, Planning Commission, 1956), pp. 444, 445. Production of yarn during an eight-hour day is estimated at six to eight hanks (between one and a half and two pounds). Cf. *Report of the Ambar-Charkha Enquiry Committee* (New Delhi: Government of India, Ministry of Production, 1956), p. 1. The programme involves the granting of subsidies so that the more costly hand-spun yarn can compete with mill-manufactured yarn. For a discussion of this aspect of the programme, cf. V. M. Dandekar, "Rationale of the Ambar Charkha," *Economic Weekly* (Bombay), Special Number, July 6, 1957, p. 863. Up to December, 1956, 37,175 *Ambar Charkhas* had been manufactured. *India 1957,* p. 321.

Industrial Electrical Products

The manufacture of such electrical goods as high tension air brake switches, line materials, transformers, switch gears and electric motors, is the newest of all the industries encountered in the present investigation. There has been, accordingly, no diversification to speak of since the six firms represented in this group (Firms 12, 25, 26, 45, 46 and 52) have, with the exception of Firm 12, scarcely had time to become established. Entrance into the electrical manufacturing field itself represents a form of diversification for several of the firms in the group, however, for example Firms 45 and 46. Both of these units were established by older trading and importing companies.[16] Firm 52 was established early in 1956 by Firm 36 (a pump producer) as an electric motor producing unit.[17] For Firm 25, entrance into the electrical field represents what amounts to a thorough-going reorganization of its activities. The firm was established just after the War to manufacture agricultural machinery of various types, including threshers, well-boring equipment, and rotary and centrifugal pumps, with emphasis on the two first-named products. The proprietor appears to have misjudged the demand for such items, for the firm did not prosper as long as it adhered to these lines of manufacture. A few years after its establishment the firm found it necessary to take on production of textile machinery parts for Firm 22, a line which is still important. In 1956 the proprietor decided to shift to production of electrical products, changed the name of the firm, and began to manufacture switch-gears, making this the first firm in the area and one of the first in South India to enter this field. Only ten switch-gears a day were being turned out when the writer visited the firm, but expansion of plant was already under way to bring capacity up to one hundred a day. This expansion involves the installation of a furnace to manufacture porcelain components, the first (according to the best information the writer could obtain) in the state. The proprietor intends to continue manufacturing textile machinery parts for Firm 22 as a profitable side-line and as a hedge against failure in the electrical industry.

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[16] Cf. Chapter III, Group 5, pp. 73 ff.

[17] Cf. above, p. 69.

Both of the remaining firms in the present group (Firms 12 and 26) were established as electric motor manufacturing companies, and have confined their activities to that field. Firm 12, established in 1939 by the proprietor of Firm 50, was a pioneering venture in its days. It was one of the first Indian-established motor plants in the South. The firm expanded rapidly during the War, and took on other types of work, including manufacture of aeroplane parts. A few years after the War, the firm was sold by the founder to two merchants from North India, engaged in the electrical trade, and has since declined steadily in size and prestige. A major factor in the firm's decline has been constant labour trouble. A strike, one of many the firm has experienced, was in progress while the writer was in the area.

Firm 26 was also established as a producer of electric motors, shortly after the War, by a graduate engineer who received his engineering education in England, with the proprietor of Firm 22. As mentioned above[18] these two enterprises were merged a few years ago. Its founder is now in charge of sales and service in the larger company.

There is little more that can be said on the subject of diversification in the electrical products industry as it still remains to be seen to what extent diversification will develop, and what forms it will take.

Miscellaneous Producers' Goods Industries

The remaining nine firms in producers' goods industries (Firms 9, 14, 15, 21, 30, 31, 32, 42 and 48) are scattered over a wide range of industries. Some of them have gotten into the industry in which they are now operating by an interesting process of development which reveals considerable adaptability on the part of their entrepreneurs.

Firm 9, a shop which specializes in the building of truck and bus bodies, began as a repair shop for the owner's buses. It was continued as a separate establishment when the bus transport company was taken over by the city.

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[18] See above, p. 68.

Firm 15 is a foundry which specializes in rough castings of machinery parts for large engineering firms in the Madras area. The enterprise was established as a small automobile repair shop, moved into piston-manufacture during the War, and with the establishment of its own foundry after the War decided to specialize in ancillary production for large units, including oil-engine and pipe manufacturers.

Firm 42 also began as an automobile repair shop, ancillary to the owner's automobile selling agency. It has developed as a manufacturer of small automobile parts, first in the repair shop, and more recently in a new and expanded plant set up specifically for manufacture. Thus far, only minor accessories including luggage racks and licence plate holders for passenger cars have been produced. When power problems have been solved, enabling the plant to go into full production, king-pins and brake-parts will also be manufactured.

Firm 30, which began on a small scale as a reconditioner of tea-rollers and other tea-factory machinery, installed a foundry after a few years to produce its own non-ferrous castings. Casting for other firms has gradually expanded, since the firm has the only non-ferrous foundry in the area, and now equals the original line of work in importance. A few months before the writer's visit, iron-casting had been begun. The method used is crucible, not cupola casting. Hitherto only Firm 28 (a manufacturer of textile machinery) has been using the crucible method in the area.

There is little to report on Firms 14, 21 and 32 which has not already been said in Chapter III. All three firms were established in the industries in which they are still operating, and are engaged in specialized activities which admit little scope for diversification. Thus, Firm 14 is a small steel rolling mill which produces angles, bars and flats from steel billets. It was established by a former merchant as an adjunct to his metal-trading business.[19] Firm 21 is a brass foundry and rolling mill which produces brass sheets and circles sold to makers of brass utensils, most of whom are village artisans. Firm 32 was set up by a large importing company to produce boilers for its tar-burners. The character of its production is decided by the needs of the trading company, to whom the entire output is sold.

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[19] The same individual established (or, more accurately, reactivated) Firm 13 after its liquidation. See Chapter III, Group 2, p. 53.

The last two firms in the present category (Firms 31 and 48) are difficult to assign to any particular industry precisely because their activities are not specialized enough. If Firm 31 has any speciality it is the production of cast iron pulleys, produced in a great variety of types and sizes. But the enterprise also manufactures centrifugal pumps on a small scale, spare parts for oil engines, and agricultural implements of various types. These manufacturing activities have developed gradually out of the original repair work for which the shop was established.

Firm 48 has an equally wide range of activities, including manufacture of pumps on a small scale, textile machinery parts, starter covers for electric motors, and iron joints for imported asbestos pipe. Both firms are perhaps best classified as general jobbing workshops, undertaking on order work of various types. Such firms are needed in every industrial area as ancillary units to both smaller and larger firms.

Consumer Goods Industries

The last ten firms are engaged in the production of various types of consumer goods and are distributed as follows among five different industries:

1. Manufacture of household utensils (Firms 8, 29 and 34).
2. Radio manufacture (Firms 35, 38 and 50).
3. Button manufacture (Firms 24 and 37).
4. Fountain-pen manufacture (Firm 43).
5. Manufacture of bicycles (Firm 44).

Household Utensils. The three manufacturers of household utensils (Firms 8, 29 and 34), all located in Madras City, manufacture enamel, stainless steel and brass utensils respectively. All three firms are in difficulty because of competition from two large firms in the area, one of which mass-produces stainless steel and the other aluminium utensils.[20]

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[20] The writer visited both these large firms to get the problems of the smaller producers in clearer perspective. The aluminium producer is a branch of a very large company with head offices in Calcutta and three or four other plants in

They have been attempting to improve their position by diversifying production, but only Firm 29 has met with any measure of success.

Firm 8, the enamelware producer, is the oldest of these three firms, having been established in 1934 as a very small producer of enamel signs. Within a few years the proprietors added the production of enamel utensils, chiefly cups and saucers at first. The firm experienced a great increase in demand for its utensils during the War, for use in army camps and hospitals. New lines of production were added during the War years, including the production of sanitary ware and electric switches. Since the War, decline has been steady. First came the falling off of the War-stimulated demand; then growing competition from stainless steel and aluminium utensils, the growing popularity of which is testified to by the growth of the two large producers since 1939.[21] Firm 8, accordingly, was in serious trouble at the time of the writer's visit. With its markets slowly slipping away, and saddled as it is with old-fashioned equipment, its situation much resembles that of Firm 13.[22] The proprietor believes that his salvation lies not so much in diversification, as in concentration on several lines of enamelware which are still selling well, and in the installation of new automatic equipment to enable him to reduce price and broaden the market. But he lacks capital. He has drawn up a plan for modernization and submitted it to the Government with an application for a loan, but does not expect to receive anything. The installation of the automatic furnaces which he is contemplating would result in some reduction of work force, which the Government does not view with favour. He also stated that the Government wants a mortgage on all his personal property as security for the loan, which he considers unreasonable and is

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India. The company was originally Indian established, but developed with Canadian capital before World War II, and is once again in Indian hands. The stainless steel manufacturer is a "sister concern" of the aluminium company. It was organized and is controlled by the managing director of the aluminium company. Each of these plants employs approximately three hundred and fifty workers and produces utensils in large quantities with the use of semi-automatic equipment. The aluminium company is itself experiencing marketing difficulties, due particularly to recent loss of overseas markets in Ceylon, attributed by the manager to the tariff policy of that country aimed at developing local industry.

[21] The number of persons employed by the stainless steel plant is nearly four times what it was in 1939. The aluminium factory's work-force has almost doubled during the same period.

[22] Cf. above, p. 179 ff.

unwilling to give. If he does not receive the Government loan he does not know what he will do, as he has been unsuccessful in his attempts to raise capital from other sources, due to the depressed condition of the enamelware market, and the poor financial condition of the firm.[23]

The difficulties encountered by another firm (Firm 29) since its establishment in 1949 have also been due to competition from the two large utensil manufacturers. The proprietor of this enterprise comes from a long line of craftsmen-jewellers, who added the manufacture of silver cutlery to their other activities shortly after the First World War. From cutlery to utensils was a short step, and in 1949 the family established Firm 29 as a second silver finishing plant, and manufacturing unit for stainless steel utensils, the market for which was then expanding. Competition in this latter line was underestimated, however, and the firm experienced great difficulty in establishing itself in the stainless steel utensil market, its costs of production being higher than those of the larger company using mass-production methods. The proprietor tried to compensate for this by turning out a more finely finished, higher quality utensil, which also had the advantage of satisfying his craftsman's instincts, but this policy did not solve the problem. The buying public has not reached that level of consumer education where fine differences in workmanship are weighed against price differentials. All stainless steel utensils look very much alike to the average buyer.

The firm consequently suffered losses every year until 1956, when a small profit was finally made. This change was achieved by diversification, begun in 1955, in the form of ancillary production for the Government coach factory. Half of Firm 29's annual output now consists of railway couplings and aluminium water tanks for railway coaches. The proprietor reported that he was able to adapt his already installed equipment to the new line of production, and found it necessary to purchase only a few new machine tools. The major problem in shifting into the new line was the re-training of labour, to bring work up to the standard of precision required by the coach factory. Many a consignment of parts was rejected, he says, during the first year of production because the work did not meet the prescribed specifications, and there are still many problems in this connection. The proprietor now plans further expansion of ancillary work of the kind he has begun, but intends also to maintain production of utensils.

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[23] Another factor possibly operating against this entrepreneur is his ill-fated attempt in the late forties to diversify production by establishing a glass factory. This firm failed after a few years. Outside capital had been raised for establishment of the glass factory, with consequent loss to investors.

Firm 34, a manufacturer of brass utensils, also reported that its main problem has been competition from stainless steel and aluminium utensils. This assertion is somewhat surprising, inasmuch as the firm sells much of its output in rural areas, which the newer type utensils are generally considered not yet to have invaded to any serious extent. The firm reported that for the first few years after its establishment in 1949 demand for its vessels was good, a maximum turnover of Rs. 4,00,000 per year being reached in 1953. Since then there has been a steady decline in sales, present turnover being about half the 1953 level. The response of the proprietors to this situation has been to expand their lead casting, which they have been able to do because of the presence of many type foundries in the area, "some of them owned by members of the same Community." The two sons, however, who are associated with the father in the management of the enterprise, feel very strongly that the father has not gone far enough in diversifying the firm's production pattern. They have ambitious plans for export of brass vessels to Europe and the United States,[24] and also think that the enterprise should begin manufacturing stainless steel utensils. They admit, however, that this venture would be risky, as they have no technical training or experience in the field. Moreover, they lack the necessary capital and "do not like to take in outsiders," the Government being included in that term. Such decision depends on the father, and since he is very "conservative" according to the sons, it would appear that further diversification of this firm's activities is not in prospect for the near future.

Radio Manufacture. Of the three firms engaged in the manufacture of radio receiving sets (Firms 35, 38 and 50), only Firm 35, the oldest of the three, has diversified its production to any extent. It has done so by gradually adding to the number of models manufactured. These models are currently of four different types: a five-tube table model; a six-tube table model; a floor cabinet model for schools; and a "Community Radio" designed for the Government-sponsored Community Projects in rural areas. The last-named model consists of a receiver housed in a steel cabinet, plus a separate loudspeaker which can be set up in a village square or a large auditorium. The proprietor of Firm 35, a graduate engineer trained in England, had a hand in designing this set, the entire output of which is sold to the Government. Of 1,800 radio sets produced during 1956, 1,000 were "Community Radios." The proprietor has no plans for further diversification of production, or entrance into new lines, but wishes to consolidate his position, improve the quality of his sets, and get production on a progressively more efficient basis. To this end he is gradually substituting automatic equipment, wherever he can (e.g. in his transformer-winding department) and as capital becomes available.

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[24] One of the sons showed the writer a brass water-carrier, commonly carried by travellers on Indian trains, and asked if he thought that the object would have a large market in America. The writer pointed out that such jugs are not used in America, and suggested an ice-cube bucket as having a somewhat better chance of sale. The gentleman was very much interested and requested pictures and drawings of possible models. It was quite evident from the conversation that the "plans" for development of export markets are still more in the realm of wishful thinking, than plans properly so called.

It will be recalled that Firm 38 is primarily an importing firm which has been reluctantly forced into radio manufacture through Government import restrictions aimed at stimulating domestic manufacture. This enterprise is much more of an assembler of radio sets than a manufacturer proper,[25] although transformers, a few other components and cabinets are now being made.[26] This proprietor is anxious to introduce a recent innovation in the manufacture of radio sets, namely, the plastic-base printed circuit in place of the traditional hand-wired circuit. He learned of this development in radio manufacture during a trip to England a year ago. He judges that it would cut the cost of producing his sets by thirty per cent, bring down the price, widen the market, and generate increased production and employment. Thus far he has not been able to convince the import-licensing authorities of the merits of the plan, who have pointed out that the immediate effect would be to put some of his workers out of job. He replies that this unemployment would be only temporary, and that expansion of production would soon increase employment again.[27]

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[25] See above pp. 71–2.

[26] The cabinets are manufactured by this company much against the will of the proprietor, who maintains that he can import from Germany plastic cabinets at one-third of the cost of making his. The Government will not grant him a licence to import cabinets, he says, to stimulate employment in India.

The proprietor of Firm 50 is, without the slightest doubt, an authentic inventive and mechanical genius. In the course of his career he has designed and built a low-cost midget automobile, an automatic ticket dispenser for use in the buses he owns, a tape-recorder, and many other machines and gadgets, most of which are on display in the "industrial museum" he maintains.[28] But this inventive genius has been one of his weaknesses as an industrialist, inasmuch as it keeps him shifting from field to field as his interests change. His first industrial venture was Firm 12 (1939) one of the earliest electric motor factories in South India, sold a few years after the War to two North Indian merchants.[29] His current venture is radio manufacture, but those who know him are doubtful how long he will continue in the field. He told the writer that he plans to expand radio manufacture and will soon begin producing tape-recorders. There seems little doubt that he is capable of doing this, as he has already produced an experimental model at a cost lower than the landed price of imported models. It is only within the past year that Firm 50 has secured its licence and begun marketing its radio sets in any volume, and it is, consequently, too early to tell what its future development will be.

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[27] This proprietor was thoroughly convinced of the truth of his argument. There can be no doubt that much of this proprietor's reasoning is based on sound economic principles. One point he has overlooked, however, is the very difficult foreign exchange position in which India finds itself. Shortage of exchange has been an important factor in the Government's restrictive licensing programme, particularly where luxury goods such as radios are involved. There is no doubt that the Government frowns on production methods which involve reduction in employment, even in the short run, but it is by no means certain that this reason is the only one or even the chief one why Firm 38 was refused a licence to import plastic sheets for printed circuits. One could also debate the desirability of expanding the radio industry at the present time. On the one hand, radio receivers are a consumer good involving use of capital and foreign exchange which might more advantageously be devoted to producing the capital goods which the country so badly needs. On the other, it must be recognized that radio sets can be an important means of education in a society where the literacy rate is low and newspapers are not widely read, as well as an important means of keeping the citizens of a democracy informed regarding political and economic questions of the day. The development of the "Community Radio" for use in villages is therefore a much more important development than may at first sight appear.

[28] In the same museum, he has a machine which Firm 42, a producer of auto parts, would very willingly buy from him—namely, an imported automatic machine for producing automobile door handles.

[29] See Chapter III, Group 7, p. 80.

Button Manufacture. There has been only one important development in the button industry in South India but it is one which is rapidly changing the entire character of the industry. A shift away from nut button to plastic button production has been taking place at a very rapid pace in both the firms found in this industry (Firms 24 and 37). This shift has transformed the industry from a labour-intensive one using a cheap imported raw material (dum nuts from the Sudan in Africa) and locally produced slicing machines, to a capital-intensive industry using expensive imported presses and other automatic machinery, and plastic imported in powdered form. The change-over has been attended by a great deal of industrial unrest. Numerous strikes have taken place in protest against the lay-offs which have resulted.[30]

The shift to plastic buttons is due to two major causes. First, the price of nut buttons has steadily declined, chiefly because of the entrance into the industry of many very small producers willing to accept a lower price to establish themselves. The industry can be entered with very little capital. The few simple machines needed such as slicing and drilling machines, can be made by almost any local blacksmith, and are small enough to instal in a small shed. Living on a subsistence level, and paying their labour very low wages, these producers can undersell factories with their heavy over-head.[31] The result has been the steady forcing down of the price of nut buttons until both the firms visited are just covering costs in their nut-button departments. They have responded by changing over to plastic button manufacture, leaving the nut button field to the small producers. The second reason for the shift from nut buttons is the growing popularity of the plastic button. Plastic buttons are offered in many different and bright colours, and are found to be more durable than nut buttons.[32]

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[30] Both firms are in the vicinity of Coimbatore, and while the writer was in the area each of the firms had a strike called against it as a protest against retrenchment of workers. These had not been the first, nor, probably, will be the last of such work stoppages, which have cost the firms much in production and hours of negotiation with the Labour Officer. The viewpoint of the workers is, of course, perfectly understandable. They are faced with the loss of jobs which some have held for years, while the number of unemployed workers in the area, is already large, because of the influx of villagers looking for jobs in the new textile mills.

[31] Such price-dislocation, and the resultant unsettling effect on larger firms, is an aspect of small industry development which is often overlooked in discussions dealing with the subject. The phenomenon is due in large part to the low standard of living of very small entrepreneurs, and the low wages they pay their few hired workers.

Bicycles and Fountain-pens. The last two firms in consumer goods industries are Firms 43 and 44, the former a producer, in association with a Japanese company, of fountain-pens, and the latter a manufacturer of bicycles.

Firm 44 has been moving ahead rapidly. Originally a small cycle repair and re-conditioning shop, maintained as an adjunct to the proprietors' cycle importing business, the enterprise is now assembling complete cycle frames, tricycles and perambulators. The value of production programmed for 1956–57 was Rs. 3,00,000. The enterprise purchases the components used for its cycles chiefly in the North. It is too small to manufacture its own parts, and is still preoccupied with establishing itself in a market dominated by large firms.

Firm 43, a fountain-pen manufacturer, is a fitting enterprise with which to close this review of diversification of production. Its proprietor is, without doubt, one of the most enterprising industrialists encountered in the study. The establishment of this factory five years ago marked the appearance in South India of an industry hitherto unknown there.[33] For the first two years only ink was manufactured, after which pen manufacture was started. New types of pens, selling for higher prices, have gradually been added, until the company now markets a wide range of fountain-pens, ranging from very cheap types for school children to expensive gold-capped models. At the time of the writer's visit the company had begun constructing a new and large plant, adjacent to the old one. This plant is to be equipped with the latest Japanese automatic pen-making machines, and will approximately double the capacity.[34]

[32] This point is important given the method of laundering used in India, even in large cities, which consists in beating clothes on a rock in a stream.

[33] There have always been many small artisans engaged in the production of cheap fountain-pens but Firm 43 was the first to manufacture on a modern factory basis.

[34] Employment in the new plant will be approximately the same as in the present plant, so that no retrenchment will be involved in the modernization programme.

When the new plant comes into operation, new lines of production will be added, including manufacture of the latest type pens developed by the Japanese associate company. In addition to this expansion programme, the proprietor is attempting to organize small ancillary industries for the production of items he now buys from large firms in the North, namely, glass bottles for ink and ebonite rods for the pen necks. As soon as the new plant is set up he intends to have these products and a few others manufactured locally on a cottage basis. He has already made preliminary investigations and has concluded that this method of production would save him money as well as create employment in the area. He is particularly interested in helping fellow members of his own community in this way.

Now that this entrepreneur has withdrawn from merchandising and committed himself whole-heartedly to industry, he hopes later to expand even further, and plans eventual manufacture of table fans and razor blades. He has already inquired into machinery costs in these two fields.[35] He is not yet ready to enter these fields of manufacture, however, as the capital is not available, and he does not wish to take in outsiders at this point.

This entrepreneur has had a great advantage over the others studied in that he has had access to Japanese technical assistance and capital. He has put this advantage to good use however and is without doubt a very progressive entrepreneur.

II

ANALYSIS OF THE DATA

It is clear that the entrepreneurs under study have, as a group, been rather active in shifting into new lines of production in response to changing conditions and opportunities. Production shifts have taken three main forms: (*i*) gradual broadening of the range of types and sizes of products manufactured, (*ii*) introduction of new products and activities alongside old ones, and (*iii*) shifts out of old lines of production into new ones.[36]

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[35] At the writer's suggestion he contacted the members of the American Trade Mission when it was in the area, to inquire about the possibility of obtaining such machines from the United States.

[36] i.e. after the enterprise has become a manufacturing unit properly so called, after its initial shift from repair work to manufacture.

All firms, with the exception of a few enterprises engaged in basic industries like rolling mills, have diversified production by broadening the range of types and sizes produced. Twenty-four firms have engaged in this form of diversification only, but some of these have been very active in this respect. Firm 6, for example, the largest of the power-driven pump producers now offers approximately thirty models to buyers.

Eighteen firms have diversified production by adding new major lines of production alongside old ones,[37] and for seven of these, diversification has included the introduction of ancillary production for larger firms.

Four firms have shifted out of old lines of activity to enter a new industry.[38]

In addition to the firms which have already engaged in major production shifts, ten others plan to enter new lines of activity as soon as they can overcome the obstacles standing in their way. Six have already begun production of experimental models or have placed orders for equipment, thus giving evidence of serious intent. The remaining four have been unable to obtain the necessary capital and are still in the planning stage.

In addition to the general desire to exploit profitable lines of activity, three principal motives have been at work to bring about changes in firms' production.

In the first place, a number of firms have been forced to diversify as a distress measure to compensate for the loss of traditional markets or severe competition from rivals. Of the twenty-eight firms which have entered new lines of production, or will shortly do so, thirteen, or nearly half, have been motivated by this reason. The four firms thus far unable to raise the necessary capital are similarly motivated. Many of these firms are producers of processing machinery or consumer goods.

In the second place, some firms have developed new lines of production to escape the insecurity consequent upon too great dependence on a single product or a single buyer (such as one large firm or the Government). This motive has been most evident in the structural field, where entrepreneurs anticipate an eventual decline in the current building boom, but it has also influenced firms in other industries.

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[37] These firms, by industry groups are as follows: *Processing Machinery*: Firms 13, 16, 20 and 27; *Power-driven Pumps*: Firms 7, 17 and 36; *Structurals*: Firms 19, 33, 39 and 49; *Textile Machinery*: Firms 22, 23 and 28; *Misc. Producers' Goods*: Firm 30; *Consumer Goods*: 24, 29 and 37.

[38] Firms 3, 4, 15 and 25.

In the third place, some firms have broadened production to overcome shortages of certain inputs or types of equipment. The principal example is the introduction of electric-motor manufacture by pump manufacturers, and the manufacture of machine tools for their own use by a few enterprises. Pump producers, however, have also been strongly influenced by the desire to exploit the rapidly expanding market for electric motors, since those who have entered the field plan to sell to outsiders as well as use the motors in their own pump-sets.

In general, new activities introduced by firms have borne some relationship to activities previously carried on. In some cases the relationship has been very close, and founded either on complementarity of products or close similarity of technique involved in the production of the two products. The firms which have diversified for the third of the three motives just mentioned afford an example of the first relationship. Pumps and motors, for example, are complementary inputs in pump-sets. The main example of the second is found among firms in the structural field. It is a short step from fabrication of structural shapes for buildings to manufacture of carts and trailers, the production process and equipment required being in all important respects essentially similar.

At the other extreme are entrepreneurs who branch out into completely unrelated fields in search of profits. Several firms have shifted over to entirely new activities after failing in a previous one, but only one example was encountered of an entrepreneur who branched out into a completely unrelated field of production alongside his old activity. This firm is Firm 18, a pump-producing establishment, whose owners have set up a second enterprise for the manufacture of buttons.

Between these two extremes are many cases of production shifts which are difficult to fit into any pattern, like the utensil maker who adds the manufacture of railroad couplings, and the producer of processing machinery who turns to production of machine tools. In such cases, similarity of production techniques establishes some relationship between the old and the new activities, although more new equipment and re-training of workers are needed than in the cases mentioned above. Scarcity of capital and technical knowledge, and the difficulties of re-training workers are the limiting factors on firms' ability to shift into new fields of production, and tend to keep them in activities closely related to those previously carried on.

What conclusions regarding the quality of entrepreneurship displayed can be drawn from the findings on entrepreneurial mobility? The conclusion seems warranted that the entrepreneurs under study are a rather enterprising group of men, willing to abandon traditional activities and accept the risks involved in entering new fields and possessing considerable ability to adapt to changing conditions and circumstances. This judgment does not apply to all without exception, but at least two-thirds of them merit this description. Many of the firms under study have been benefited by the enterprise and adaptability of their proprietors. Some have been rescued from stagnation or decline by timely shifts into new lines of production. Others have been made less dependent on a single market or buyer, and hence presumably less vulnerable to possible shifts in demand and growing competition in the future.

There remains the broader question, alluded to above,[39] whether these production shifts have been desirable, given the special needs and problems of an under-developed country, in which lack of specialization by entrepreneurs can be as great an evil as lack of enterprise and unwillingness to change. Would the economic development of Madras State, and India as a whole, have been better served, in other words, if the production of electric motors, carts and trailers, small machine tools, and the other products which the firms under study are now producing had been provided for by establishing entirely new units rather than by diversifying existing ones?

The question must ultimately be decided on the basis of costs of alternative courses of action, including in these costs the possible weakening and ultimate failure of firms through failure to diversify production. Collection of data on costs was outside the scope of the present study, and consequently no complete answer can be given to the question. A limited and tentative evaluation of these entrepreneurs' mobility is possible, however, and will serve to point out some of the considerations which must be taken into account in deciding the question.

In the first place, the mobility displayed by the entrepreneurs under study does not appear to be the opportunistic "fly-by-night"

[39] See Chapter I, p. 14.

type which sometimes keeps capital in under-developed countries shifting from one field of industry to another, in search of quick profits, without remaining long enough anywhere to build up an efficient industrial plant. Possibly five entrepreneurs are of this type, judging from their very varied business careers to date. They are the founders of Firms 12 and 50 (one individual[40]) and the founders of Firms 18, 28, 34 and 51.[41] The great majority, however, have shifted into rather closely related lines of activity, and in order to solve problems caused by market shifts, growing competition, or shortages.

In the second place, the fact that firms have introduced new lines for the most part closely related on the technical side to their former activities means that skills and experience acquired in the established activity have been brought to bear on the manufacture of new products, which consequently have probably been of higher quality, and produced more efficiently than if production had been left to new entrepreneurs entering the field of industry.

In the third place, diversification has in some cases permitted fuller utilization of plant already in existence. The established entrepreneur has, accordingly, been able to enter new lines with less capital than a new enterprise would require, an important consideration in a country faced with acute shortage of capital. Pump manufacturers who have entered electric motor manufacture, for example, have been able to do the required casting in their existing foundries, which would otherwise have been idle much of the time. It is also true, however, that fuller utilization of capacity could have been achieved by expanding output of pumps. In the absence of detailed data on costs it is impossible to decide which alternative results in the greater saving of capital, and hence is preferable from the social point of view.

In actual fact, entrepreneurs apparently often prefer to enter new lines of production, after they have grown to some extent, rather than attempt to expand sales of the product they are already producing by branching out into new areas or by taking business away from competitors. One of the chief reasons is undoubtedly the fact that profitability is usually judged to be higher in the new activity due to lack of competition. There appears to be another reason, however. The propensity to imitate successful entrepreneurs is notoriously high in under-developed countries, and as a consequence there is always the danger of over-crowding in established industries as imitators crowd in behind the pioneers. Established entrepreneurs are aware of this fact and fear the increased competition and price reductions which can be expected to follow. As a result, the risks of expanding current lines of production often appear greater to them than those involved in entering some new field just opening up and in which competitors are still few.

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[40] See Chapter III, *Group 7. Miscellaneous.*

[41] See Chapter III, *Group 3. Former Factory Workmen*; *Group 2. Domestic Merchants*; *idem*; and *Group 6. Manufacturers*, respectively.

Furthermore, constant expansion of markets for established products requires aggressive and systematic promotion of sales, activities which the typical small industrialist is poorly equipped to handle. Such men, except perhaps when they are former merchants, have little training and experience in active sales promotion, and only the most rudimentary sales organization.[42] They are apt to feel much more at home coping with problems of production and technology, such as are involved in shifting into a new line of production. In addition, sources of market information are extremely scarce in under-developed countries. Entrepreneurs are forced to rely mainly on first-hand knowledge of conditions.[43] The larger their market, the harder it is to obtain reliable information.

These factors, in the writer's opinion, account in large part for the tendency of entrepreneurs to exploit new opportunities as they present themselves instead of attempting to expand markets for established products. This is apart from the motives for diversification already discussed.[44] A small entrepreneur may well be better placed to estimate the market for a new product, often local in character, than to estimate more distant markets for his traditional products. Paradoxical as it may sound, he thus incurs less risk, or so it can easily seem to him, by entering a new line of production than by expanding an old one. Lack of adequate market information and poor marketing facilities have often been cited as obstacles to establishment of industrial enterprises in under-developed countries, since these factors increase the risks involved. The same factors may explain the readiness of established entrepreneurs to shift into new lines of production and diversify their firms' activities even while they are still quite small.

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[42] See above, Chapter v, p. 171 ff.

[43] For a discussion of this problem and its influence on investment decisions in under-developed countries, see Aubrey, *Industrial Investment Decisions.*

[44] See above, p. 206.

Entrepreneurial mobility of the kind discovered in the course of the present study thus becomes more understandable, even though fuller data might show it to be socially undesirable because it results in losses from failure to specialize sufficiently and hence is wasteful of the community's resources. If the analysis is correct, it points up the close relationship which exists between adequate market information and the growth of industry along more rational lines. The relationship is one aspect of "balanced growth" to which underdeveloped countries have perhaps not paid sufficient attention in their efforts to industrialize rapidly.

CHAPTER VII

SUMMARY OF FINDINGS AND POLICY RECOMMENDATIONS

Summary of Findings

THIS HAS BEEN a study of industrial entrepreneurship in an under-developed area: the economic and social background of entrepreneurs; the ways in which they have made the transition to industry from previous activities; their problems in establishing and developing their enterprises; and the quality of their performance in the light of the particular needs and conditions of an under-developed country attempting to industrialize rapidly. Findings have been analysed and conclusions drawn in appropriate places throughout the study. The present summary, accordingly, can be kept very brief.

The major finding with respect to origins of firms is that the entrepreneurs studied have sprung from extremely varied economic and social backgrounds. Contrary to a widespread opinion in India, only a minority of the fifty-two medium-scale enterprises which we have examined were established by former merchants. Men of trading background, however, constitute the largest single occupational group, 28·8 per cent of the entrepreneurs encountered being domestic merchants or importers. Trained engineers were found to comprise the second largest group, 23 per cent of all entrepreneurs being graduates of engineering colleges. The presence of so many entrepreneurs with engineering degrees was unexpected and indicates a widening of the base of industrial entrepreneurship in India. Other important occupational groups from which entrepreneurs have been drawn are rural artisans, former factory workmen, cultivators, and established manufacturers. A few teachers, white collar workers, and various types of businessmen are also represented.

Entrepreneurs have been drawn from ten Social Communities, but 79 per cent of them are members of the Naidu, Brahman or Chettiar Communities.

In general, the findings indicate greater freedom of entry into industry than is generally supposed to exist in one of the less developed regions of a country where traditional occupation and caste are important in determining economic status. The cases suggest that sociological factors such as caste, attachment to traditional activities, and approval or disapproval of the social group to which a potential entrepreneur belongs are less important than economic factors such as access to capital and possession of business experience and technical knowledge. The prevailing social structure and community relationships have great influence in determining who obtains access to capital and knowledge, however.

Certain technical aspects of engineering manufacture have facilitated entry into industry. It was found that an entrepreneur can enter the industry with very little capital. Nearly half the firms studied were established as small repair and odd-job shops, many of them with an investment of only a few thousand rupees and six or seven employees. Many entrepreneurs have succeeded in establishing themselves with very little technical knowledge also, a phenomenon which appears to be closely related to the fact that buyers are not very quality-conscious in a country just beginning to industrialize. This situation changes as economic development gathers momentum, however, and improvement of quality and technical advance have become urgent needs in the area studied. Growth of firms, finally, can take place gradually and by small increments, so that expansion can be financed out of earnings. This consideration is important, since it was found that small firms in an under-developed region have little access to outside capital, or access to it in only small amounts. All these factors have contributed to the success of the firms under study and appear to account in large part for the ease of entry discovered and the wide variation in entrepreneurs' social and economic backgrounds.

As a group, the entrepreneurs under study have been eager to expand operations and develop their firms into larger units. Eighty-five per cent of all enterprises were established as small-scale units and were developed over the years into the medium-size enterprises which they now are. As mentioned above, many began as very small units with only a few employees.

Two major patterns of growth are discernible: (1) discontinuous growth involving a major reorganization of the enterprise at some point in its career, often undertaken with the help of outside capital, and (2) gradual growth taking place by small increments. Forty-four per cent of the firms have developed according to the first pattern, and fifty-six according to the second. In general, reinvestment of earnings and fresh capital supplied by proprietors have been the major sources of capital for growth. Outside capital has played a more important role among firms developing according to the first of the two patterns just mentioned than among those which have grown more gradually. In need of a relatively large amount of capital at one time for purposes of making the transition from repair to manufacture or to shift into a new line of production, Pattern I entrepreneurs have often been obliged to share ownership with outsiders or borrow from outside sources. Loans for purposes of expansion have been difficult to raise and have come predominantly from friends, relatives and private moneylenders. Growth Pattern II has predominated among firms established on a larger scale and by men who already owned a trading or other business. These entrepreneurs, consequently, have found it easier to finance their growth out of earnings of one or another of their enterprises and have been less handicapped by the difficulty of obtaining outside capital.

The fact that reinvestment of earnings has played so important a role in the growth of enterprises generally suggests that the character of the economic environment in which these firms are operating has been a major factor in entrepreneurs' success. All are located in areas currently undergoing considerable economic development, and most are in industries faced with "sellers' markets." The entrepreneurs, nevertheless, must be credited with the initiative and enterprise needed to exploit the opportunities presented and with willingness to plough back earnings and assume the risks involved in expansion.

Growth of enterprises has been achieved in the face of formidable obstacles. Chief among these have been an acute shortage of basic raw materials, unavailability of skilled labour and technicians, chronic shortage of working capital (until the inauguration of the State Bank Pilot Project in early 1957), and constant and serious labour trouble. The labour problem is causing entrepreneurs the most concern. Employer-employee relations are very poor and appear to be deteriorating. Major work-stoppages are not frequent, but day-to-day relations between management and workers are characterized by constant bickering and argument and frequent complaints to the State Labour Officers, resulting in many hours lost by entrepreneurs in arbitration proceedings, poor worker morale and losses in production. Many entrepreneurs feel unable to enforce adequate discipline in their plants. Low wages and poor working conditions are an important cause of worker discontent.

The situation is complicated by the fact that unions are led by "outsiders," who are frequently politicians more interested in advancing their political careers by agitating among workers than in securing solid gains for labourers through realistic collective bargaining.

Entrepreneurs as a group have thus far shown little awareness of the need for closer contact with workers or of the need for improving working conditions. In contrast most of them have developed a defeatist attitude toward the problem, are unprepared to admit that the workers have any just grievances, and tend to place all blame on outside "meddlers" and "Government coddling" of workers through social legislation and restrictions on employers' right to discharge. Even admitting all the complexities of the problem and the possibility that too much emphasis has been placed on law as a means of protecting workers' rights, the prevailing tension indicates some degree of entrepreneurial failure. Labour is a primary productive resource, and its integration with other factors of production in smooth-running, efficient production units is a major part of the entrepreneur's function. Few of the entrepreneurs under study have succeeded in achieving such integration, and few appear to realize that they must take the initiative in establishing the closer contact between management and workers which must precede the growth of mutual understanding, the ultimate solution to the problem.

The labour problem is, from the longer range point of view, the most serious problem faced by the firms under study, and possibly by Indian industry generally, since the problem is nation-wide. Enthusiasm of entrepreneurs for further growth has been dampened, production losses are great, and firms have been impeded from raising productivity and shifting into new lines because of the inability of management to secure whole-hearted cooperation of workers, particularly when re-training of workers is necessary.

Despite the difficulties they have encountered, the entrepreneurs under study have succeeded in expanding their enterprises, thus creating jobs and supplying much needed industrial products. Extensive regulation of the private sector and the official Government aim of a "socialistic pattern of society" have not thus far dampened their initiative. Judged by the first criterion adopted in the present study, namely, interest in growth and success in promoting it, entrepreneurs have performed quite well.

Performance in the area of technological improvement has been much less impressive. Lack of technical knowledge, unfamiliarity with work-methods study, inability to secure the cooperation of workers, and a generally defeatist attitude with regard to the labour problem are the chief reasons. Interest in technological improvement is growing, however. The entrance of engineers into manufacturing industry has raised technical standards, and competition is growing as industries become more crowded. Many proprietors are attempting to improve quality of output through private study of technical books, a few have hired technicians, and some have sons or other relatives in engineering colleges preparing to enter the firm. There seems to be little hope of substantial technological advance, however, until employer-employee relations improve.

The findings with respect to entrepreneurial mobility show that many entrepreneurs have been active in diversifying production and in shifting into new lines of activity. The chief motives behind these changes in firms' production patterns have been the desire to insure against market shifts, improve competitive position and overcome shortages of vital inputs, in addition to the general desire to exploit new and profitable opportunities.

Entrepreneurs' mobility has perhaps been excessive. Willingness to change and adapt to new circumstances is expected of capable entrepreneurs, but specialization is also needed if quality of output is to be raised and costs lowered, so that markets for industrial products can widen. In the absence of detailed cost data it is not possible to arrive at a firm appraisal of entrepreneurs' activities with regard to diversification and other production shifts. Mobility, except in a few cases, does not appear to have been the "fly-by-night" kind which sometimes keeps capital in under-developed countries shifting from one occupation to another in search of quick profits. Rather, the shifts which have occurred, appear to be the outcome of sound decisions aimed at strengthening firms and improving their competitive position, taken in the context of the peculiar conditions existing in an under-developed but developing area. Fear of over-crowding as imitators enter established industries and lack of adequate market information concerning conditions in more distant places appear to explain in large part the preference of many firms for new lines of production over the expansion of old ones.

In attempting to evaluate the over-all performance of the entrepreneurs under study the general conclusion seems warranted that the entrepreneurship displayed has been of fairly high quality, when account is taken of the great problems they face and of the fact that most are "first-generation" industrialists. As a group, they have shown themselves eager to grow, and, to a lesser extent, to improve technologically. They have been willing to re-invest earnings and assume the risks of expansion in rapidly changing markets and have shown considerable resourcefulness in raising capital and in coping with their other problems, with the exception of the labour problem.

As a group, they are certainly far removed from the picture, often presented as typical of the medium-scale industrialist in India, of the opportunistic businessman with very short time-horizon, interested only in fast tunover and quick profits, completely unconcerned with technology, unwilling to invest more than the bare minimum in fixed capital, and still preoccupied far more with trade than with industry. This description may fit a few proprietors with trading background, but it is not typical even of that group of entrepreneurs. The great majority appear definitely committed to manufacturing industry, and within the limits of their abilities and resources are working for the permanent establishment of their enterprises, their growth and technological advance.

It has not been possible to correlate entrepreneurs' performance with social or economic background. Enterprising and capable industrialists are found in all groups. They are found in larger numbers, however, in the ranks of the graduate engineers. It would be difficult to support this statement with tangible statistical evidence, but such is the impression conveyed by many talks with entrepreneurs of all types and first-hand observations of their establishments.

Recommendations for Future Policy

A first general recommendation is that the light-engineering industries be considered as possessing key importance in programmes aimed at the industrialization of India, and perhaps of underdeveloped countries generally. The high degree of freedom of entry discovered in the course of the present study suggests that these industries are a sector of the economy in which potential entrepreneurs can make the transition to industry more easily than elsewhere, and so constitute a particularly fruitful "breeding-ground" for developing entrepreneurs so badly needed in underdeveloped countries. This fact gives the industries in question an importance for economic development over and above their contribution to employment and industrial production, important as that contribution is. Small- and medium-scale enterprises in these industries should be strengthened and helped to grow in every possible way.

Coming down to particulars, there is an urgent need for adequate credit facilities for firms of the type under study. The State Bank Pilot Project has been of great assistance with respect to the need for working capital in the area studied. But a noticeable gap still exists in institutional arrangements for providing such firms with medium- and long-term capital needed for expansion and modernization.[1] Provision of credit for fixed capital is not normally the proper function of commercial banks. But the State Financial Corporations which have been set up in India have not been a satisfactory answer to the problem, judging from their record thus far. These Corporations have been preoccupied with the needs of firms larger than those included in the present study, presumably because they are judged as a better financial risk and can be more easily investigated. On their side, smaller entrepreneurs have been reluctant to approach the Government for aid because of the long delays and "red-tape" involved, the widespread feeling that some "influence" is needed, and a fear (real in their minds, although not necessarily well-founded) that excessive Government interference and inspection will follow upon a loan. State Financial Corporations, furthermore, with their limited personnel and without the advantage of branch offices, face grave handicaps in dealing with smaller firms scattered over a wide area. Direct local contact is difficult to achieve, which makes it difficult for the Corporation to appraise the credit-worthiness of applicants for loans and to supervise effectively the use to which loans are put.

A possible solution is the granting of medium- and long-term loans to credit-worthy firms by the State Bank of India and the privately owned commercial banks, against re-discount facilities to be provided either by existing State Financial Corporations or by a Financial Corporation to be set up for the purpose. Such an arrangement would put actual lending in the hands of experienced banks in close contact with local conditions through their branches and well equipped to judge the credit-worthiness of smaller manufacturing establishments. At the same time, banks' liquidity would be safeguarded through the re-discount facilities provided.

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[1] Shortly before this study went to press the Reserve Bank announced a guarantee scheme for bank loans to small-scale industries to be implemented in selected districts throughout the country early in 1960. For details cf. *The Hindu* (Madras), November 5, 1959.

The implementation of the programme just advocated will require further study and considerable time. In the meantime, assistance should be provided for medium-scale firms of the type studied by including them in the programmes now in force in India for assistance of small industries, at least in the programme for hire-purchase of machinery. As noted earlier, a small enterprise has been officially defined as one which employs less than fifty persons if it uses power, and less than one hundred if it does not use power, and whose investment in fixed capital does not exceed Rs. 5,00,000.[2] This definition should be changed to bring within its scope the enterprises under study. Although they are not large by any standard, these firms are now excluded from small industry assistance programmes (except the State Bank Pilot Scheme for provision of working capital[3]) since they employ more than fifty persons and use power.

The use of both an investment and an employment criterion to determine the upper limit, as is done in the present definition, involves a curious anomaly which does not seem to have been realized, judging from discussions with members of the Government of India's Small Industries Service Institute in Madras. Under the present definition, for example, a firm employing forty workers and having an investment in fixed capital of Rs. 4,00,000 (a relatively capital-intensive enterprise) would be eligible for financial and technical assistance, while one employing a hundred and ten workers with capital of Rs. 3,00,000 (a labour-intensive enterprise) would not. The firm which has created more employment would thus be penalized, even though one of the main objectives of the small industry aid programme is said to be alleviation of unemployment. To this objection it was sometimes replied that the definition is administered "flexibly" and not adhered to rigidly in practice.

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[2] Since the completion of this study early in 1958 the definition of small-scale industry has been changed to include enterprises with capital of Rs. 5,00,000 or less regardless of the number of persons employed [*The Hindu* (Madras), October 7, 1959]. Elimination of the employment criterion does away with the anomaly referred to in the following paragraphs. The writer's suggestion that there should also be a lower limit in the definition has not been adopted.

[3] See above, p. 141 ff.

But this practice is no solution, since the mere publication of the present definition discourages firms with more than fifty employees from applying for assistance. Furthermore, the officials to whom application is made may interpret the definition strictly.

These defects should be removed by employing only one criterion to define the upper limit of a small enterprise, namely, the investment criterion of Rs. 5,00,000. This upper limit should be defined in terms of capital and not employment, since one of the objects of developing small industry is conservation of capital and creation of jobs in industry. If this single criterion were adopted, almost all the firms included in the present study would be eligible for assistance, with considerable benefit to them and the country. A former adviser to the Government of India for small industries pointed out that capital investment is more difficult to ascertain than employment, and that the employment criterion was adopted partly for this reason. Capital investment must still be investigated under present regulations, but such investigation is not important at the present time, since it is a safe presumption that a firm with less than fifty employees will not exceed the investment limit of Rs. 5,00,000. Data gathered in the course of the present study indicate that this level of investment is rarely exceeded until a firm has well over one hundred employees even when power is used. If a double criterion must be kept, then, a compromise solution might be to raise the employment limit to one hundred and twenty-five or one hundred and fifty workers. In doubtful cases, strict proof of the amount of investment could be required of applicants.

The writer has been given to understand that raising the employment limit to one hundred workers (with power), still keeping the investment limit presently in force, has in fact been discussed several times in the Small-Scale Industries Board which advises the Government of India on small industries programmes. It has thus far been rejected partly on the ground that if the limit be raised there will still be border-line cases just above the limit which will constitute an argument for raising the limit still further. This difficulty, however, applies to any limit, including the present one of fifty employees. It cannot be escaped wherever the line be drawn.

The writer believes that small firms should also be required to reach a minimum level of development before they qualify for assistance under small industry programmes. Such a provision would channel aid to those entrepreneurs who have already demonstrated ability to develop by their unaided efforts, and who, therefore, give promise of making effective use of capital and technical assistance put at their disposal. The requirement would also provide incentive to small industrialists to expand to the point where they would qualify for assistance. The measure of development required should be set in terms of employment and not capital, for the reasons mentioned when discussing the upper limit. Minimum size should not be set too high, perhaps at a minimum of ten employees in addition to proprietors. Such a provision would not only shift upward the range of industry assisted under small industry programmes and concentrate effort on enterprises whose industrial potential is likely to be greatest, but would also make current programmes more manageable than they appear to be at the present time by reducing the number of eligible entrepreneurs. Although it may be desirable to aid all small industrialists, even the smallest, programmes must be tailored realistically to scarce financial and administrative resources lest efforts be spread too thin.

Another recommendation for future policy is that far greater emphasis be placed on technical assistance to small- and medium-scale industry. Even more than capital assistance, the enterprises included in the present study need help in solving their technical and labour problems. A clue to the way in which both problems can be attacked simultaneously is provided by the findings of the International Labour Office's productivity teams regarding the close relationship which exists between working conditions, employer-employee relations, and physical productivity. Methods-study experts should be made available to small- and medium-size plants to study working conditions and production methods and to train both proprietors and key personnel in ways of improving them. Such a programme would have to be preceded by education of entrepreneurs regarding the value of such programmes, as there is a distinct tendency to view work-study methods as being appropriate only for large firms.

There is special need for teaching entrepreneurs how to achieve greater precision of workmanship so that firms can take on more ancillary production for larger enterprises. Many large enterprises are looking for ancillary parts producers, but small- and medium-scale firms cannot meet the standards of precision required. The experience of one large firm has been that the initial order usually meets the required specifications, but that there is a gradual falling-off of standards in subsequent orders. This fact indicates that a large part of the problem is merely lack of "precision-consciousness" on the part of workers and entrepreneurs. There is also a great need for better equipment, re-training of workers, and better testing methods in the smaller establishments, however.

Until the services of productivity teams or individual experts can be put at the disposal of small- and medium-scale enterprises, it would be helpful to make available to entrepreneurs books on production techniques, work-study methods and industrial psychology. The writer was impressed by the number of entrepreneurs who asked for information regarding such books and for assistance in obtaining them. A proposal is actually under consideration to set up "industrial libraries" where such books will be available to entrepreneurs, but this approach does not seem realistic. The "library habit" is not widespread in India, even among students, and an industrialist who has spent eight or ten hours in his workshop is not likely to spend the evening in a library (even if the library were to remain open in the evening, which few Indian libraries do). If books are permitted to circulate, many other problems arise, due to general unfamiliarity with library procedure and practice. A more practical approach would be to furnish information periodically to entrepreneurs on books they might purchase and to devise a simple method for getting these books into their hands, payment to be made in Indian rupees for even foreign books. Such a programme might conceivably be set up through collaboration of the Small Industries Service Institutes and the UNESCO's book coupon programme. The findings of the present study indicate that many more entrepreneurs would be interested in purchasing books than is commonly supposed. Provision of books can be only a stop-gap measure, however, and the essential need is for productivity experts and teams who can spend time in the plants and train both entrepreneurs and key workers in better production methods.

In the matter of technological improvement (as in the matter of capital provision also) exclusive reliance should not be placed on Government-organized programmes. There is perhaps in India too great readiness to turn to Government for the solution of problems and to set up another Government agency when difficulties are being encountered. Besides over-burdening a Government already faced with shortage of financial resources and trained administrative personnel, such a policy runs the risk of smothering initiative on lower levels and preventing the full utilization of the community's entrepreneurial resources. "Industrial cooperatives" exist in Japan whose members are industrialists operating their own individual enterprises. These cooperatives resemble trade associations, except for the fact that their functions are much broader, extending to cooperative marketing and technical assistance to members. Technicians employed by the cooperative help individual firms improve technology and quality of products. This approach to the problems of medium-scale industry might well be tried in India.

Before such a programme can succeed there must be available a sufficient number of technicians and extension workers who can provide the desired services to the member firms. This points to the great need for training facilities where the needed personnel can be trained. Here the Government can play an important role, and provision of the necessary training centres may well be the most important contribution it can make to the technological advance of medium-scale enterprises. Lack of a comprehensive programme for industrial extension workers, including their training, is perhaps the greatest weakness in the present efforts to assist smaller industry in India.

A cooperative approach such as the one just outlined has the great merit of drawing on the initiative of industrialists themselves. It thus evokes a broader exercise of the entrepreneurial function and develops still further that most valuable of all industrial resources, entrepreneurship.

APPENDIX

DETAILS OF COVERAGE AND METHOD USED IN THE STUDY

Coverage

Geographical Area. The study was limited to Madras State, as defined by the States Reorganization Act which took effect from November 1, 1956. More specifically, the state's two major industrial centres were studied, namely, Madras City and environs (Chingleput District) and Coimbatore and environs (Coimbatore District). The sample of fifty-two firms was obtained from the State Factory List for 1956 (i.e. as of December 31, 1956), unpublished at the time of the study, but available in manuscript through the courtesy of the Chief Inspector of Factories of Madras State. A few omissions were discovered as the investigation proceeded and were remedied by the writer. In general, these were recently established firms which had not yet found their way on to the list.

Fifty-nine medium-size enterprises in the light engineering-manufacturing field (as defined below) were discoverable in the state, distributed as follows: (*a*) twenty-eight in Madras City and Chingleput District; (*b*) twenty-eight in Coimbatore District; (*c*) three in other places in the state, namely, one each in Salem, Madurai, and Tiruchirapalli. Of these fifty-nine firms, fifty-one were included in the study (eighty-six per cent), plus one large firm, as explained below. This coverage includes twenty-four of the twenty-eight in Madras and Chingleput (eighty-six per cent), and twenty-seven of the twenty-eight in Coimbatore (ninety-three per cent). Of the four in Madras and Chingleput which were not included in the study, one of the proprietors was out of the city for an extended time and the acting manager was unwilling to co-operate in the study during the proprietor's absence. One had recently changed ownership, and the founder of the firm could not be contacted nor reliable information obtained on the origins and development of the enterprise. Two were visited and some information obtained, but it was not considered sufficiently satisfactory to be included in the final study. The firm in Coimbatore which was omitted could not be located despite several attempts to do so. It was not considered worth the time and expense to travel to Madurai, Salem, and Trichy to investigate the few remaining firms in the state.

Range of Industry Investigated. The investigation was limited to medium-scale privately owned firms in the light engineering-manufacturing industries of the state. Enterprises owned by public bodies such as municipalities or non-profit organizations such as trade schools were omitted. There are very few such enterprises in the state. The definition of light engineering industry which was used is that given in the British industrial relations handbook,[1] namely, establishments engaged in the "manufacture, assembly or repair of goods or articles of iron, steel, non-ferrous metals and plastics by the use of machine tools and including the foundries and forging plants which produce for the manufacturing, assembling and repair establishment." Establishments engaged exclusively in repair work were, however, eliminated from the coverage, since the writer's interest was centered on the development of manufacturing industry. The effect of this restriction was to eliminate several automobile and bus transport company workshops. The inclusion of plastics among light engineering industry, although perhaps somewhat unusual, had the advantage of bringing in two firms operating in a new and interesting industry in the state, namely plastic button manufacture.

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[1] *Industrial Relations Handbook of the United Kingdom* (Great Britain: Ministry of Labour, 1945), p. 52. This definition of small-scale industry has subsequently been changed to eliminate the employment criterion.

"Medium-scale" enterprises were defined as firms employing at least fifty but not more than two hundred and fifty persons. The lower limit was derived from the then current Government of India definition of a "small-scale" enterprise, namely, an establishment "employing less than fifty persons if operating with power and less than one hundred persons if operating without power, and having capital assets not exceeding Rs. five lakhs."[2]

The choice of fifty employees as the dividing line between "small" and "medium-size" firms is admittedly arbitrary. It does have economic significance in India at the present time, however, in view of the various Government programmes which have been organized for the assistance of small industries as just defined.[3]

The upper limit of two hundred and fifty employees was decided by the fact that above this level there is a decided gap in the firms of the state, after which a group of firms appears employing approximately three hundred and fifty employees and upward. In addition to their larger size, these latter firms are quite different in character from their smaller counterparts, being either foreign-established or foreign-controlled enterprises, or firms established by wealthy Indian businessmen, often in collaboration with foreign capital. As such, they are set off from the firms in the sample chosen, by reason of their origin and general characteristics. An adequate investigation of them would have required a study organized differently from the present one. There is, however, one exception to what has just been said. Firm 22 of the present study is a very large concern, employing nearly four thousand workers. It was included because it was founded on a very modest scale by an Indian entrepreneur, and during the first years of its existence, at least, was in no important respects different from the other medium-size enterprises encountered.

Industries Investigated. Of the fifty-two firms included in the sample, forty-one are operating in producer goods industries and the remaining eleven in consumer goods industries. The detailed breakdown is as follows:

Method

Personal Interviews. The method used was the personal interview. Firms were visited several times, and interviews were conducted with proprietors, who in most cases were also the founders of the enterprise, and with other

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[2] *National Small Industries Corporation: Administration Report*, 1956–57 (New Delhi: Government of India, National Small Industries Corporation, 1957), p. 2. The capital requirement refers to fixed capital. All the enterprises included in the present study operate with power, being engineering establishments.

[3] See above, Chapter II, pp. 32 ff. For a discussion of the appropriateness of the Government's definition, see Chapter VII, pp. 219 ff.

Table 39

DISTRIBUTION OF FIRMS INVESTIGATED BY INDUSTRY GROUPS

	Industry	*Number of firms*
	Producer goods industries	
1.	Agricultural machinery (rice hulling machines, oil engines, power-driven pumps, etc.)	16
2.	Steel-fabricating and structural workshops	8
3.	Electrical products	6
4.	Textile machinery and spare parts	3
5.	Rolling-mills (steel and brass)	
6.	Rough and finished castings	
	Truck and bus body-building	
8.	Miscellaneous	
	TOTAL	41
	[illegible]	
1.	Household utensils	3
2.	Radio receiving sets	3
3.	Plastic buttons	2
4.	Automobile parts	1
5.	Fountain-pens	1
6.	Bicycles	1
	TOTAL	11

persons connected with the firms, such as works managers, book-keepers and dealers through whom firms distribute their products.

The writer's approach was to walk unannounced into the factory office (since it was impossible, except in a few cases, to obtain advance introductions) and ask for the proprietor. To this gentleman the writer briefly explained who he was and the nature of the study in which he was engaged and then asked him to read the letter of introduction which was then handed over. This letter, written under the letter-head of the local Jesuit college, repeated the information just given and included an outline of the information desired. The letter served a double purpose. It gave the writer an opportunity to appraise the proprietor's proficiency in the English language, and, since the Jesuit college is very well known throughout the area, its letter-head served as a kind of local reference. Thus the writer became in the eyes of the proprietor something a little more than a complete outsider.[4]

At this point in the proceedings two questions invariably arose, namely, "How did you get our name?" and "What other firms are you visiting?" When the proprietor was told that all medium-size firms in the industries selected would be visited and that the names had been obtained from the Factory List, the tension relaxed noticeably. All proprietors are, understandably, suspicious of being singled out for special investigation. But, once satisfied that all their colleagues will be subjected to the same treatment, they feel much better about the whole thing.

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[4] A number of proprietors were encountered who were graduates of one of the two Jesuit colleges in the state and who had sons attending the colleges, or employees who were graduates. In addition to the letter just mentioned, the writer had provided himself with a letter of introduction from the Economic Officer of the American Consulate in Madras which proved useful.

The next half hour was generally taken up with the writer answering questions rather than asking them, concerning his background, his experiences in India, what he thought of the country, and so on. Such conversation was extremely helpful in establishing friendly relations and was useful for learning something of the proprietor's own background and attitudes. The visit ended with a tour of the plant, the guide often being the works manager or book-keeper, since by this time the proprietor generally had to get back to work. This, too, had its advantages, because it gave the writer the opportunity to talk to someone not the owner of the business. When at the end of the first visit the writer asked if he might return to talk over some of the problems of the firm he was almost always invited to do so.

In general, the writer received a friendly reception. The writer had almost been dissuaded from attempting the study by predictions that he would find "these businessmen very suspicious," that they "would not talk to him," and similar depressing prophecies. Fortunately, these predictions proved to be greatly exaggerated. It is true that on his first visit to a firm he was usually received with some suspicion and a great deal of reserve. In at least one instance, having asked for the proprietor, he was told that the proprietor was "out of station," only to discover ten minutes later that he had been talking to him all the time. It proved comparatively easy, however, to overcome these initial attitudes. Once satisfied that the writer was not an inspector from the Income Tax Office and that he did not intend to set up a rival enterprise (fears which the clerical garb did much to dispel) the proprietors in almost all cases became quite cooperative.

There were, of course, some exceptions, but fortunately, they were few in number. In one case, the proprietor was "too busy" to see the writer on his visit and not very cordial thereafter. One was quite friendly on the first visit but very uncooperative on the second. The writer was able to see one proprietor in the office several times but was refused permission to visit the plant, some miles from the city. Even in these cases, however, some reliable information was obtainable, from others who had dealing with the firms as well as from proprietors.

One of the reasons for the generally friendly reception accorded the writer seems to be the simple fact that the entrepreneurs as a group are rather proud of the enterprises they have succeeded in building up. Many of them, as the case-studies show, are the first persons in their family to get into industry. Some are the first in their family to get into any business at all. They consider themselves "self-made men" and are not unwilling to talk about their enterprises. Most of them also seemed a little flattered that a student would travel all the way from America to study their background and problems. The writer also had the definite impression that most of these men were glad of the opportunity to talk to some disinterested person about their situation. As a group they feel quite isolated. More than one complained that "no one is interested in our problems. The Government isn't interested, banks won't help us, and the unions are interested only in stirring up trouble. Small industries can get help from the

Government, and the 'big fellows' can take care of themselves, but we are left to flounder along alone." The present study indicates that there is a good deal of truth in this statement.

Finally, there was the fact that some of the firms hoped that the writer would be able to help them in some way. In the course of the investigation about a dozen requests were received for some form of assistance.[5]

Cross-checking of Data Supplied. The information obtained had, of course, to be verified before it could be used. The problem of cross-checking was made easier by reason of the fact that a complete enumeration of firms within the range investigated was aimed at. Each proprietor knows a great deal about some of the other firms in his area, and if proprietors are sometimes reticent about their own affairs they are not so about the affairs of others. There were also frequent opportunities to speak with dealers who buy from the firms studied, as well as salesmen who sell to them. Such people get to know a great deal about the firms with which they have habitual dealings, including their history, difficulties, and even the family background of the entrepreneur. These men were usually encountered first in the office of one or other of the firms visited, and, when visited later, were a useful means of verifying or correcting information given by proprietors. Another group of persons who proved very helpful as a cross-check were the firms' book-keepers, commonly called "accountants." The writer has come to the conclusion that if labour turnover is a problem in India, it is particularly acute among book-keepers. Almost every one encountered had worked for some other firm in the sample. The reason is not hard to find. The book-keeper is usually not a relative of the proprietor, presumably because the work is largely clerical in nature, and relatives are usually put in more responsible positions in the enterprise. As a result, the typical book-keeper is free to move from one firm to another. Each new firm starting up, in turn, requires the services of an experienced "accountant" and is willing to pay a few rupees more to attract one away from another firm in the industry. The book-keeper in his turn is quite ready to leave his old employer for the extra money. The opportunity to talk with these men usually came while the writer was waiting for the proprietor, or when observing operations in the plant. Many key employees, such as foremen, were also encountered who had worked for other firms in the sample.

The supplementary information gained from sources such as these was a valuable means of confirming and supplementing information bearing on entrepreneurs' background, the origin of the enterprise, its subsequent course of development, and its major problems. When one learns from three or four different persons who have dealings with a firm that its proprietor is a "self-made man" who was once a "raw hand" in a local foundry, he can accept the fact as true. In one case, to cite another example, the writer left a certain firm after the first visit definitely under the impression that the proprietor had developed the present establishment (a steel-fabricating and structural workshop) all by himself out of a small blacksmith shop inherited from his father. Two days later another proprietor was encountered who claimed that he and his brother were once in partnership with the man just referred to, and that it was the capital of all three which made the development possible. The writer was able to elicit confirmation of this fact on his next visit to the structural workshop. Many such cross-links and connections were uncovered among the firms studied, as is brought out in the case-studies.[6]

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[5] Among the most important forms of assistance requested were the following: how to secure the services of a foreign technician for the operation of an electric steel furnace; information on possible arrangements with American firms for manufacture of the latters' products; assistance in securing foreign exchange for purchase of technical books dealing with foundry technique, plant layout and organization and cost-accounting for small firms; and requests for suggestions as to what to read in the field of industrial psychology and labour relations. It was possible to provide some of the assistance requested through the American Consulate or U.S. Technical Cooperation Mission in India.

The writer's main concern was to verify the general picture of each enterprise which gradually emerged as he moved around a given area: the origins of the establishment, the background of its founder, its initial size, and the general course of its development—whether it had been developed by the proprietor without outside help, or by taking in partners, or in some other way. Once established, this general picture served as a control over details, such as initial investment figures, which could not be verified directly.

Another source of control was provided by old Factory Lists made available to the writer by the Chief Inspector of Factories. Employment figures obtained from proprietors were checked against these lists, which provided some indication of the general reliability of the information being supplied. Employment figures, in turn, served as a control on investment figures which could not be verified in other ways.

The statistical material gathered is not nearly as complete as the writer would have liked and relates only to initial and present employment and investment.[7] It may have been possible to gather more complete statistical data, but several attempts convinced the writer that the interminable delays which would have been involved, as well as the danger of possibly exciting suspicion by asking to see too many records, were out of proportion to the benefits which would have accrued. On balance, given the main objectives and scope of the study, it was considered more prudent to rest content with statistical material of a more general nature.

A final comment should be made concerning the language of interview. All the proprietors except five were found to be quite proficient in their knowledge of English. The book-keeper or works manager acted as interpreter for the five who were not.

The field work was carried out in Madras and environs from the middle of February until the middle of May, 1957 and in the Coimbatore area during June and July, after which the writer returned to Madras to gather information of a more general and supplementary nature.

Serial numbers have been used in place of firms' names to protect the anonymity of entrepreneurs. Indian industrialists are not used to investigations of this sort and proved more willing to co-operate when told that their particular firms would not be identified.

There follows a copy of the questionnaire shown to proprietors on the first visit.

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[6] See Chapter III.

[7] For a fuller discussion of these statistics, see above, Chapter V, pp. 144–6.

ECONOMIC RESEARCH PROJECT ON THE GROWTH OF ENGINEERING INDUSTRIES IN SOUTH INDIA*

A. *General Information*

1. Name of Firm
2. Main products or activity
3. Form of organization (proprietary, partnership, etc.)
4. Date of establishment
5. Size: rated capacity, employment, investment, turnover
6. Character of the market: local, all-India, foreign

B. *Origin of the Firm*

1. Would you kindly outline the story of the establishment of the enterprise, indicating who promoted it (i.e. an individual, another firm, etc.)?
2. What major factors led to location in this area ?
3. What was the initial size of the enterprise: rated capacity, employment, investment, turnover ?
4. What considerations decided initial size of plant ?
5. Will you kindly indicate some of the major problems encountered in getting established ?

C. *Important Mile-stones in the Firm's History*

1. Have any of the following changes taken place since establishment ?
    - (*a*) Establishment of new units
    - (*b*) Expansion of original unit
    - (*c*) Improvements in design or layout of plant
    - (*d*) Installation of improved machinery
    - (*e*) Introduction of new products or activities
    - (*f*) Important changes in marketing arrangements
    - (*g*) Other (please specify)
2. Which of the above changes, if any, were carried out with technical assistance from outside the firm ?
3. Were any such changes planned but not carried out? If so, please indicate why they were not carried out.
4. Are any such changes planned for the near future ?

---

* The following general questionnaire was presented to the proprietor, after he had read the writer's letter of introduction. It was intended, not as a complete questionnaire, but as a method of acquainting the proprietor with the type of information which was desired. More delicate questions, such as sources of capital for establishment and growth of the enterprise, were deliberately omitted, to be brought up only after some rapport had been established.

D. *Major Problems*

What are the major problems faced by your enterprise today ?, e.g.

1. Raw materials
2. Labour problems (of what type ?)
3. Shortage of capital
4. Shortage of technical or managerial personnel
5. Some measure or policy of Government
6. Other (please specify)

E. *Economic Relationships*

1. How do you recruit labour and technical personnel ?
2. Do you have an apprentice system ?
3. Is there a labour union in the plant? If so, was it organized by the management or from outside ?
4. Do you do any significant amount of sub-contracting with local firms?
5. Do you know whether the activities of your firm have led to the establishment or expansion of other firms in the area ?

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